

"Steeping coffin | Talina m

Great Patriotic War: Unknown Vonna

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"Flying coffins>> Stalin

"ALL LOWER AND LOWER AND LOWER...>>

Moscow "YAUZA-PRESS" 2011

UDC 355/359 BBK 68

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Design of the series by L. Volkov

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"Flying coffins" of Stalin. "Everything is lower, and lower, and lower ..." / Vladimir Beshanov. — M. : Yauza press, 2011. — 352 p. — (Great Patriotic War: Unknown War).

[5VM 978-5-9955-0344-6

A NEW book by a leading anti-Stalinist historian. Continuation of the bestseller "WE Fought ON COFFINS!"

"The Flying Guaranteed Coffin" – this is how "Stalin's falcons" called the LAGG-3, which at the beginning of the war was considered the main "new type fighter", but was inferior to the "Messers" in all respects. Knowingly lost to the enemy and the MiG-3, and even the Yak-1, not to mention the outdated "donkeys" and "seagulls". (How can one not recall the words of the commander of the Red Army Air Force Pavel Rychagov addressed to Stalin, which cost him his life: "You are forcing us to fly on "coffins"!"). Despite the pre-war "dizziness from success" and propaganda hype, "Stalin's falcons" could not fight on an equal footing with the Luftwaffe - from the first days of the war, the Fuhrer's "experts" seized undivided air supremacy, and our military aviation, outnumbering the enemy three times, demonstrated complete incapacity and by the end of 1941 was knocked out by 90%, which cannot be justified by either the "suddenness" of an enemy strike or the airfields that "slept through" the war. The backlog of the Soviet Air Forces could not be eliminated until the Victory itself - no matter how good the La-7 and Yak-3 were, at the end of the war the Germans had already launched jet fighters into mass production!

By refuting the key Stalinist myths, this book exposes the scientific and technical inconsistency and inefficiency of the totalitarian regime, for which de

hundreds of millions of lives. UDC 355/359 BBK 68

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CHAPTER 1

Contrary to popular belief, until 1917 there was an aviation industry in Russia. Not as powerful as in the West, but dynamically developing and steadily increasing its potential. By the way, the first statesman who dared to become an airplane passenger was Chairman of the Council of Ministers P.A. Stolypin.

If before the First World War, the productivity of domestic aircraft factories was about 480 aircraft per year, then in 1916 1384 heavier-than-air aircraft were produced (in the Soviet Union this quantitative indicator would be reached only after 15 years) and 1398 aircraft engines were assembled. The government heavily financed the aircraft industry, allocating large funds to contractors. In the industry "worked", mainly, private or joint-stock capital, not constrained by bureaucratic restrictions.

In October 1917, there were 34 aviation enterprises in Russia, employing up to 12,000 workers. Of these, 14 factories produced aircraft, seven - engines, three - propellers and skis, two - magnetos, one - aircraft instruments, the rest were being completed. Along with the firms that arose earlier - the "First Russian Aeronautics Association" S.S. Shchetinin (plant "[a-mayun]"), plants V.A. Lebedev in St. Petersburg, Taganrog and Penza, who assembled seaplanes and the famous Ilya Muromets multi-torpedo planes, the aviation department

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St. Petersburg Russian-Baltic Carriage Works, the Moscow plant "Duks", the plants of A.A. Anatra in Odessa and Simferopol, V.F. Adamenko in the Crimea - the production of aircraft was mastered by the enterprise of the Italian designer F.E. Mosca in Moscow, F.F. Tereshchenko near Kiev, F. Melker's factory in Petrograd. In the Kherson region, the largest experimental and research aviation center, Aviagorodok, was created.

Long before Stalin's industrialization and the "five-year plan in four coffins" in Russia, a system for training aviation personnel was formed and the organizational structure of Russian military aviation was created. Ya.M. biplanes appeared. Gakkel and A.S. Kudasheva, flying boats D.P. Gri Gorovich, fighters and heavy bombers I.I. Sikorsky, helicopters B.N. Yuriev, scouts V.N. Hioni. A.A. built their planes. Porohovshchikov, F.N. Bylinkin, L.D. Kolpakov-Miroshnichenko, A.A. Krylov, V.L. Moiseev, V.P. Nevdachin, V.F. Savel'ev, A.A. Semenov. Aviation bombs and torpedoes, bomb releasers, machine-gun and cannon mounts, synchronizers, aircraft radio stations, cameras, navigation instruments, a backpack parachute were created, wind tunnels and laboratories were built, a fairly advanced technology for the manufacture of aircraft was worked out: acetylene welding was widely used, aggregate assembly and the plasma-template method were used.

The largest increase in capacity was observed in engine building, mainly due to the capital investments of French firms. In Moscow, in addition to the Gnome and Ron plant, the Salmson plant arose, and the construction of workshops for the Renault company began in Rybinsk. In 1916, the plant "Duflon and Constantino-HIV" (Deka) was organized in Aleksandrovsk. The production of aircraft engines of their own design was also carried out by RBVZ, the Joint-Stock Partnership "Motor", and the P. Ilyin's carriage and automobile factory.

In 1917, it was planned to manufacture 2,250 aircraft at all factories, and a year later, to increase the productivity of the aircraft industry to 3,000-4,500 aircraft.

After February, foreign entrepreneurs began to gradually curtail production and export capital abroad. The October Revolution and the Civil War led to the complete collapse of the Russian aircraft industry. In this area, the new government considered the cleansing of the Air Force Directorate of "counter-revolutionary elements" as the highest priority. Which task was successfully solved by specially appointed commissars, who considered aviation a purely bourgeois entertainment, like perfume and lipstick. At the same time, the sign was changed: since April 1918, the official emblem of the Red Air Fleet, though not for long, was a swastika in a white circle.

On June 12, 1918, the aeronautical apparatus factories were assigned to the last category of supply of fuel, raw materials and electricity. Military orders have ceased. Thousands of workers and engineers, left without work, wages and "class food rations", went to free bread. The largest enterprises for some time still continued to function at the expense of accumulated stocks, having produced 255 aircraft and 79 engines. Then nationalization followed, the refusal of the new government to pay external debts, foreign investments disappeared, and the former empire turned into a wild territory - the Soviet of Deputies, with which no one wanted to deal.

In 1919, 137 aircraft and 77 engines were assembled in Soviet Russia, in 1920 - 166 and 81, respectively. , Kiev, Berdyansk, Sarapul and Karasubazar. Meltzer's Petrograd factory was redesigned to produce furniture, burned down in Moscow

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aerotechnical plant together with a unique wind tunnel. Of the fourteen aircraft manufacturing plants, only three were left, which were in the most deplorable state: with runaway workers, broken equipment, stolen tools, without heating and stocks of raw materials. The quality aviation wood accumulated over the years was used for firewood.

During this time, hundreds of qualified specialists left the country, unable to overcome their disgust with the ideals and principles of Marxism. Among them were the chief designer of the aviation department of the RBVZ I.I. Sikorsky, who became "helicopter pilot No. 1" in a foreign land, outstanding aerodynamics A.P. Van der Flit (author of the first domestic textbook) and M.E. Glukharev, strongman S.P. Timoshenko, academicians A.A. Lebedev (the theory of aircraft engines) and D.P. Ryabushinsky (founder and scientific director of the Kuchinsky Aerodynamic Institute), Professor G.A. Botezat, who developed the mathematical theory of aircraft stability (he was greeted with open arms at the US National Committee on Aeronautics), talented engineers V.S. Margulis, F.I. Bylinkin, V.V. Jordanov, M.L. Grigorashvili, M.M. Strukov, I.I. Makhonin, R.S. Komarnitsky, Yu.K. Otfinovsky, V.I. Yakimuk, legendary pilots B.V. Sergievsky, A.N. Prokofiev-Seversky, B.V. Korvin Krukovsky and many others. Russian designers successfully worked in the aviation industry of the USA, France, Germany, Belgium, Great Britain, founded aircraft construction in Japan, China, Yugoslavia, Poland. The "Russian" aviation companies "Sikorsky Corporation", "Seversky Aircraft", "Chase Aviation Company", "IDO", "Helicopter Corporation of America" have become world famous. The Order of the Legion of Honor - for an outstanding contribution to the development of French aviation - was awarded to V.A. Lebedev.

Scientists and designers who decided to stay "in the homeland of the victorious proletariat" catalyzed around Professor N.E. Zhukovsky, on whose initiative the Central Aerohydrodynamic Institute (TsAGI) was established in December 1918 by government decree. The Institute united the employees and the base of three aviation organizations: the Calculation and Research Bureau at the Aerodynamic Laboratory of the Imperial Moscow Technical School, the Kuchin Aviation Institute and the Flying Laboratory at the Central Aerodrome.

The institute was headed by the Collegium chaired by N.E. Zhukovsky and MTU graduate A.N. Tupolev. V.P. Vetchinkin, A.A. Arkhangelsky, B.S. Stechkin, N.I. Ivanov, N.V. Krasovsky. The specialists of the new center were engaged in the development of the scientific foundations of modern aviation on the basis of theoretical and experimental studies of the aerodynamics, hydrodynamics and flight dynamics of aircraft, their strength.

In 1918-1920, the Red Army was armed with about 300 aircraft of various designs. The replenishment of the aircraft fleet was carried out mainly due to the repair of damaged and

trophy cars. At the end of the Civil War, there were 65 squadrons, an average of five dilapidated aircraft in each.

"It is no secret to anyone," wrote the journal "Vestnik vozdushnogo flota", "that our native Red Air Fleet is on the verge of destruction: there are almost no new aircraft, old ones can no longer be repaired, a few trophy ones captured from counter-revolutionaries, will also soon fail."

On January 26, 1921, a special commission was created in Moscow, which developed a three-year program for the development of "aeronautics and aircraft construction". The essence of the program was simple: in parallel with domestic production, acquire (buy or steal) in the West

for the needs of the Air Force, the necessary samples of equipment and licenses for its construction.

In 1921-1922, 150 German military aircraft of the period of the First World War were purchased abroad - Halberstadt, Fokker O-UP and others. Another 70 aircraft - "Avro", "Martinside", "De Havilland" - were purchased in England. At the end of 1923, an agreement was signed with a subsidiary of the Fokker firm in Amsterdam for the supply of 200 reconnaissance and C-GUIR-X type fighters]. In the same period, 30 Balilla A-1 fighters, 50 SVA-10 reconnaissance aircraft, about 20 A-300 reconnaissance aircraft, and fifty Savoy S-16 flying boats were purchased from the Italian company Ansaldo. Yes, one hundred British Martinside E-4 fighters.

As this will be repeated many times later, as soon as the Bolsheviks became concerned about the security of the country, a mortal famine began in it. Which is quite natural, given that in 1921 the value of the gross output lying in the ruins of Soviet Russia amounted to only 1344 million rubles, 11.5 million rubles were spent on the purchase of aircraft, aircraft engines and spare parts for them in 1922, the total amount of the transaction with Fokker - 3.6 million. In addition, a quarter of the national income of the former great railway power was invested in the construction of steam locomotive plants in Sweden; The Comintern received 5.5 million gold rubles in 1922 to support the "fraternal" Communist Parties (a gold ruble then "cost" 6.38 French francs); the askers of the Turkish general Mustafa Kemal were generously supplied with gold and weapons, and you never know what expenses. For example, they bought 60,000 sets of leather uniforms for valiant Chekists and paid for a monument to Karl Marx in central London. And what about the 300 million marks allocated in 1923 for the implementation of the "German October"? And how many suitcases with currency and diamonds went into organizing the "proletarian uprising" in Bulgaria?

Most of the airplanes purchased abroad were obsolete, and sometimes simply defective.

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mi machines, including because of the swindling and illiteracy of the Soviet agents who received them. So, in the report of A.P. Onufriyev, director of the State Aviation Plant No. 1, addressed to I.V. Stalin, K.E. Voroshilov and V.V. Kuibyshev, it was noted that the sample of the Fokker R-KhG aircraft was recognized as unsuitable for adoption during the preliminary test.

In 1923-1924, the flagship of the domestic aircraft industry GAZ-1 (former Dux) produced 23 Nieuport-24bis, 18 Sopwith and 19 De Havilland aircraft.

The Petrograd GAZ-3 Krasny Pilot (former RBVZ together with the Gamayun plant), which was engaged in the repair of cars and engines, in 1923 launched the U-1 training biplane, copied from the English Avro-504K.

In the same year, GAZ-1, followed by the Taganrog aircraft plant GAZ-10 (the former enterprise of the Lebed joint-stock company) began to develop the production of a two-seat "domestic" reconnaissance aircraft and light bomber P-1. The design of this biplane was

designed by a student of I.I. Sikorsky, who graduated from the St. Petersburg Polytechnic Institute of Emperor Peter the Great, mechanical engineer N.N. Polikarpov, who creatively copied based on the available possibilities (for example, due to the lack of small nails, the canvas was sewn to the ribs with twine) and materials (instead of wood, where possible, they used plywood and steel pipes, and instead of American spruce, Soviet Siberian pine), the English De Havilland OH9 glider with the American Liberty 400-horsepower liquid-cooled engine. The technology was developed by engineer V.S. Denisov. By the way, "the drawings of OH4 were found, which came to Russia even in 1917 and were already brought into line with the domestic system of measures, materials and technology at that time," and more than a hundred ready-made OH9 were purchased for the Red Air Fleet. Of course, our historians have always argued that the R-1,

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built in mass series until 1931 with a total number of 3032 copies, "although outwardly it resembled its British predecessor, it was, in essence, a new aircraft and in a number of characteristics, in particular, load capacity, surpassed both the DX4 and DX9."

In addition to this "particular", the Soviet clone, with similar armament (two British machine guns - the Vickers course and the Lewis turret) and a shorter flight range, weighed 670 kilograms more than the OH4 of the 1916 model with 375-strong engine (and 240 kg more than OH9), flew 40 km/h slower and one and a half kilometers lower. Moreover, the first serial samples were surrendered without weapons or with one synchronous machine gun.

Himself N.N. Polikarpov, running for full membership in the Academy of Sciences, compiled in 1943 a list of 24 points of successfully solved scientific and practical problems. Half of the list is marked: "For the first time in the USSR" or "First in the world." There are even "streamlined winter skis for heavy aircraft", but Nikolai Nikolayevich didn't even remember about the R-1. Great pilot M.M. Gromov, without delving into the intricacies of technology, wrote: "This aircraft was an exact copy of the English De Havilland OH-9 aircraft with a 400 hp engine."

At the same time, the design teams of N.N. Polikarpov and D.P. [Grigorovich, on the instructions of the military, they tried to create a modern, high-speed and maneuverable fighter.

The team of D.P. Grigorovich (unlike the group of N.N. Polikarpov, who developed a monoplane fighter, on which pilot K.K. Artseulov almost died), decided to build a traditional biplane, which in 1926 became the first Soviet serial fighter I-2-bis, which developed a maximum speed of 220 km / h, was armed with two machine guns. Over three years, the GAZ-1 and GAZ-3 factories built more than 200 rather mediocre aircraft. Assistant Chief of the Air Force Research Institute for

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technical part of E.K. Stockmann in 1927 gave the car the following assessment:

"According to the conclusion of the Research Institute, the I2-bis aircraft is completely unsuitable as a modern fighter due to its low rate of climb, low ceiling and very poor maneuverability."

Engines for all this "flying zoo" had to be bought. For the engine building for a long time was the most backward branch of the Soviet industry. In 1921-1924, the import of aircraft engines amounted to 1032 engines of various companies - the English Daimler and Sydney-Puma, the American Liberty and Spa, the French Ron and Hispano Suiza, the German Maybach, Mercedes and BMW, Italian Fiat. Traveling salesmen all over Europe were happy to sell their "comrades" at breathtaking prices the goods stale after the world massacre, sometimes completely inoperable or with fake factory brands.

In order to eliminate the acute dependence on the West, starting from 1924, some foreign engines began to be produced in the USSR, "naturally", without any licenses. At the GAZ plant No. 4 Motor, they mastered the M-5 (aka Liberty-12), the GAZ plant No. 2 Ikar (former Thunder and Ron) produced 80-horsepower M-1 (Ron)), plant GAZ No.-9 "Bolshevik" - M-6 ("Hispano-Suiza 8E").

It is the 400-horsepower M-5, mastered under the guidance of the famous heat engineer Professor N.R. Brilling and engineer A.D. Shvetsov, installed on R-1 and I-2 machines. In this regard, it is amusing to read in the "Military Historical Journal" the statement of the first deputy head of the department of the General Staff of the Air Force that the "reconnaissance aircraft R-1 was equipped with an engine of domestic design."

On December 6, 1924, by a special resolution of the Presidium of the Revolutionary Military Council of the USSR, the Air Force was allowed to purchase another 710 aircraft engines, including 150 Sydney-Puma, 50 Napier, 270 Lorraine-Dietrich, 15 Fiat,

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150 Liberty, 75 BMW-[U]. Soon I had to place an order for another 1740 engines. Military attache in Paris L.G. Mironov managed in 1925 to get about 4,000 Ron rotary motors lying around in a private warehouse; purchased practically at the price of scrap metal; under the "name" M-2, they ensured the flights of Soviet training aviation for several years in advance.

The fact is that from a financial point of view, it was more profitable to buy aircraft abroad. At domestic factories, although they reproduced foreign designs, they did it according to their own artisanal technologies. For example, due to the lack of powerful presses, forty-five-kilogram crankshafts for the M-5 engine were machined from workpieces weighing almost a ton. As a result, the "engine of domestic design" cost the country three times more than the exact same American "Liberty", and was 20% heavier, and the R-1 aircraft cost one and a half times more than the "very similar" 2x9 delivered from England . Not to mention the difference in product quality.

Great help to Soviet Russia was provided by friends from defeated Germany. Under the terms of the Treaty of Versailles, the Germans were categorically forbidden to own and build airplanes, so they had to scrap 14,000 aircraft. After the signing of the corresponding agreement in Rappallo between the two European outcasts, secret cooperation in the military sphere began.

In November 1922, a concession agreement was signed with the Junkers company, which was the first in the world to establish serial production of monoplanes made of duralumin, for the construction and equipment in Fili near Moscow of a large aviation enterprise for the production of all-metal aircraft, aircraft engines and duralumin rolled products. The military circles [of Germany hoped as a result to get a testing ground for the development of German aircraft. The Soviet government also had high hopes for cooperation with Junkers. It was planned that this

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the firm will lay the foundation for the entire aircraft industry complex. Under the terms of the contract, the plant in Fili was leased for thirty years, and its productivity was to reach at least 300 aircraft and 450 aircraft engines per year.

However, the hopes did not come true. During the four years of the concession's existence, only 20 Yu-20 seaplanes and a little more than a hundred Yu-21 reconnaissance aircraft were made. In addition, the Junkers plant in Sweden delivered 15 YUG-1 three-engine metal bomb carriers. All machines had characteristics below those promised. At the beginning of 1925, due to disagreements between the concessionaires, mainly financial, production was practically stopped, most of the German specialists left for the Fatherland. The company did not even begin preparations for the production of aircraft engines. The vigilant Chekists came to the conclusion that the Junkers firm was in fact a spy organization. nization, the purpose of which is the collapse of the Soviet aviation industry.

It is only unclear what exactly the Germans were going to ruin. It is even more interesting that, having recently brought the Bolsheviks to power, now, through the Junkers firm, senselessly, from the point of view of the political alignment of forces in Europe, they wanted to achieve not only "weakening of the military power of our country", but also passionately dreamed of "restoration of the monarchy".

In March 1926, the Politburo of the Central Committee of the All-Union Communist Party of Bolsheviks ordered the termination of the contract with the Junkers firm. It was decided to develop the Soviet aviation, relying on its own forces. All the more so since there have been some encouraging developments.

In 1922, at the Gospromtsvetmet plant in the village of Kolchugino, Vladimir Region, under the guidance of metallurgist Professor I.I. Sidorin, engineers V.A. Butalov and Yu.G. Muzalevskii, the first batch of ingots of an aluminum alloy, called chain aluminum, was obtained. It was recognized that the alloy is not inferior in its

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to foreign analogues and can be used in aircraft construction. In the autumn of the same year, a Commission for the construction of all-metal aircraft was formed at TsAGI under the chairmanship of A.N. Tupolev as part of I.I. Sidorina, G.A. Ozerova, I.I. Pogossky. From the work of this commission, in which A.I. Putilov, V.M. Petlyakov, B.M. Kondorsky, N.S. Nekrasov, in fact, the history of the Tupolev Design Bureau begins. Before taking on aircraft, the technology was tested on snowmobiles and gliders. The sleigh was followed by the ANT-1, an aviette built from traditional materials, but with the use of Kolchugino aluminum.

In May 1924, the first Soviet all-metal aircraft ANT-2 took off. After the technology of using aluminum chain mail in aviation was sufficiently developed, the commission for the construction of all-metal aircraft was abolished and in September 1925 the design bureau AGOS (aviation, hydroaviation and experimental construction) was formed at TsAGI, which became a monopolist in the field of metal aircraft construction, in the sense that other organizations were expressly forbidden to design combat aircraft from metal.

In general, the attitude of the Soviet government towards unauthorized creativity, creativity without an order or "coordination", is clearly seen from the anecdote told by the People's Commissar of Ammunition B.L. Vannikov:

"Once Stalin told me on the phone that he had received from N.A. Bulganin, a report about one front-line soldier who very easily converted a seven-shot rifle into an automatic one.

"I gave instructions," Stalin said, "to reward the author for a good suggestion, and to punish him for unauthorized alteration of weapons with several days of arrest ..."

In November 1925, the ANT-4 twin-engine monoplane with corrugated metal skin took off, which was to become a heavy bomber.

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TB-1. At the same time, the Tupolev group completed the creation of a two-seat metal reconnaissance aircraft ANT-3 (R-3), and the brigade P.O. Sukhoi began designing the ANT-5 (I-4) fighter.

In March 1927, the concession with Junkers was liquidated, and the plant in Fili, after two years of inactivity, became part of Aviatrest under the name Plant No.-22. It began preparations for the release of A.N. Tu-field. Historiographer of Soviet aviation V.B. Shavrov notes that the Tupolev machines were rational, thoughtful, "not inferior in all respects to Junkers designs." Still would! It was from Junkers that ideas were stolen, developed and became domestic. So, in a report addressed to People's Commissar of Defense K.E. Voroshilov reported:

"1) All the necessary drawings, materials, etc. were secretly seized from the Junkers plant.

2) A group of Russian engineers who previously worked for Junkers, on the basis of these materials and their experience, developed in every detail the organization of production, templates, machine tools, a card system for recording and passing orders, etc. This development was occupied by a group of engineers for several months. The results of this development were partly used in the repair of Yu-20, Yu-21 and Yu-13 and in the production of TsAGI scouts at plant No. 5.

The TsAGI scout is just ANT-3. Familiarization with the German experience greatly facilitated the introduction of domestic aircraft made of duralumin into mass production. Working together with German specialists, Soviet workers got acquainted with the latest techniques for assembling aircraft, and engineers studied and mastered the most advanced technologies. They mastered it so well that three years later the Junkers company filed a lawsuit against TsAGI, trying to defend its copyrights to the design and production method of the metal wing. Of course, the Germans did not receive any satisfaction for their claims. First, the Soviet monoplane

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with a thick profile wing and corrugated skin was built "before G. Junkers received patents for such a design in the USSR." Secondly, A.N. Tupolev was forced to adapt foreign technology to the capabilities of the domestic industry and thus created the "original wing design". The originality, for example, lay in the fact that the Junkers wing was joined to the center section with the help of union nuts, and Andrei Nikolaevich used cone bolts for this.

In fact, TsAGI could not boast of its own achievements at that time.

"This institute has given almost nothing to our industry during its existence. For 7 years from the date of foundation, TsAGI was mainly engaged in the construction of new laboratories, buildings, etc.; In relation to scientific work, there were a number of initiative works that were of interest to individual heads of departments, while TsAGI often remained deaf to the demands of industry.

From the practical work of TsAGI, we can note the release of an album of a series of screws, which is not the result of our own experiments, but the processing of American tests; then calculated norms were developed (also processing of foreign, mainly American norms). In the absence of standard calculation methods, in the absence of albums of aerodynamic blowdowns, in the absence of theoretical research that is currently of interest to the aircraft industry, especially its experimental construction branch, factory workers could only use information from foreign literature, which caused unnecessary a waste of time and money (for example, in the Experimental Department of GAZ No. 1, an information section is organized that processes foreign literature, although this work would be closer to TsAGI).

Of the vital departments of TsAGI, it should be noted the aircraft building department, which produced multiple metal

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personal aircraft. But, in essence, this work on experimental aircraft building should not be the work of a scientific institute ... "

According to the last point, A.N. Tupolev had his own opinion: all experimental aircraft building should be concentrated in a single scientific center equipped with the latest technology. By this time, a large wind tunnel of the closed type T-1-2, built under the direction of A.M. Cheremukhin. She had

two working sections (3 mibm), at the time of construction it was considered the largest in the world and, due to "significant difficulties with metals, their assortment and sheet materials", was made of wood and plywood.

The R-3 aircraft, put into production in the summer of 1927, was a two-seat single-column wing-and-a-half glider with a trihedral fuselage. The frame was assembled from aluminum chain mail profiles, the outer skin was made from sheet corrugated aluminum chain mail. The armament consisted of one synchronous machine gun for firing through the propeller and a twin turret in the rear cockpit, where the gunner-observer was located. Up to eight small bombs were attached to the outer suspension. Various types of engines were tried on the car: the American Liberty was replaced by the domestic M-5, the English Napier Lion and the German VMU U were installed. In the end, they bought a hundred Lorraine Dietrich engines with a capacity of 450 hp from the French. The new reconnaissance aircraft, which developed a maximum speed of 200 km / h, fully met the requirements of military aircraft. By the spring of 1929, 22 R-3 aircraft were handed over to the Air Force units (due to the "very rear centering", radio equipment and defensive weapons were not mounted on them) and 79 R-ZLD aircraft.

The I-4 fighter is a single-seat all-metal strut wing-and-a-half wing with an air

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cooling and French origin "Gnome-Ron-n-Jupiter-GU" with a capacity of 420 hp. developed a speed of 250 km / h and during the tests was recognized as a machine that in all respects is not inferior to the best fighters in the world. True, as V.B. Shavrov: "The flight performance of the production aircraft was lower than that of the experimental and lead aircraft, and the aircraft could no longer be considered among the leading aircraft. The use of corrugated skin, protruding ribs and stringers, the absence of fairings at the ends of the struts and even on the spokes of the wheels gave a lot of resistance, which was very sensitive for the small size of the aircraft. In addition, in the I-4 series, it turned out to be almost 1000 kg heavier than the ANT-5, which had a take-off weight of 1343 kg. Even with the new "Jupiter-Ub" in 480 "horses", the maximum speed of the fighter did not exceed 230 km / h, the ceiling - 7000 m. Strikingly similar to it, almost identical in layout, size and armament, the French Devuatin 27 model 1927 (with smooth duralumin skin and wheels without spokes) flew at a speed of 270 km/h and had a working ceiling of over 9000 m. The British Hawker Fury in 1929 squeezed 350 km/h. Nevertheless, the I-4 was produced in different versions from 1928 to 1933. In five years, about 400 cars were built.

The heavy twin-engine all-metal monoplane ANT-4 with Napier-Lion engines with a take-off weight of 6712 kg had a maximum speed of 214 km/h and a service ceiling of 4830 m. liquid-cooled cylinder engines VMU M with a nominal power of 500 hp. The bomber had a crew of six people, was equipped with three machine-gun sparks, the bomb load was 1000 kg, and the flight range was 1000 km.

The TB-1 was a landmark machine, the prototype of all subsequent multi-engine cantilever monoplane bombers. Total Soviet Air Force

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received 218 copies of the TB-1, which were in service until 1936.

According to the classification that emerged in those years, heavy bombers were called "airships". For their escort, military theory demanded that the Air Force have multi-purpose "air cruisers". Therefore, in parallel, the AGOS TsAGI design bureau designed and built "an aircraft for long-range reconnaissance, bomber escort and air combat" - R-6 (ANT-7). It was a reduced copy of the TB-1 bomber. The speed of the car increased by more than 50 km / h at the same range. Crew - four

man, including one gunner in a downwardly retractable turret, incidentally borrowed from Junkers, who used it on Yug-1. Armament - five machine guns.

In the office of N.N. Polikarpov, who became the chief designer of the Land Aircraft Department of the Central Design Bureau of Aviatrest, in 1927-1928 the I-3 fighter, the R-5 multi-purpose aircraft and the legendary U-2 "heavenly slug" were created.

I-3 was a wooden polutoraplan with wings of different spans, with a VMU / MG engine. With a top speed of up to 283 km/h, it had good maneuverability and rather high flight and combat qualities. The Soviet Air Force received about 400 of these aircraft.

The R-5 double reconnaissance aircraft was an enlarged I-3, which developed a speed of 230 km/h, had a ceiling of 5900 m, a flight range of 1000 km, and was armed with two machine guns. In the attack version, the aircraft was equipped with seven machine guns and carried up to 300 kg of bombs. The excellent machine was built at plant number-1 in large series (6826 copies in total) in various modifications and was in service until 1944.

In addition, in 1927, in order to acquire the latest aviation technology, the Air Force Office transferred

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technical requirements for the development of a single-seat fighter for the USSR to Ernst Heinkel. In the summer of the next year, the aircraft, designated NO-37, was delivered to Moscow. It was a biplane with a ground speed of 300 km / h, with a steel tube fuselage, a wooden wing and canvas covering. According to the test results of Ya.I. Alksnis reported to the Deputy Chairman of the Revolutionary Military Council I.S. Unshlikhtu:

"In terms of flight qualities and maneuverability, the NO-37 aircraft leaves far behind the aircraft supplied by the UVVS - Fokker DKhG - Hispano-Suiza 300NR, I-2 and I-2 bis - M5 and above built experimental aircraft I -3 - VMU \ U M and I-4 - Yup.Ub.

In the autumn of 1929, 150,000 marks were forfeited for the right to build such a wonderful machine and provide technical assistance to the Heinkel company. The new fighter under the designation I-7 was decided to be built at the plant number-1. While the NO-37 tests were going on, N.N. Polikarpov was instructed to create his own fighter with a welded metal frame. And they even planned a business trip for the designer to the Heinkel plants "to clarify all issues related to obtaining technical assistance for welded aircraft".

Only the Marine Pilot Aircraft Building Department, which since 1925 was headed by D.P. Grigorovich. The department was engaged in the design of domestic seaplanes, but for three years of work it was not able to present a machine suitable for adoption. At one of the meetings of the Politburo I.S. Unshlicht stated:

"The situation is much worse in the field of hydro-aircraft construction, since all the hydraulic machines that have come out of our experimental construction so far have turned out to be unsuccessful and unsatisfactory to the requirements imposed on them."

The Aviatrust memorandum on this matter stated:

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"We are terribly poor in the field of hydroaviation. They are poor not only in the material sense (we have a meager number of seaplanes), but also even poorer:

a) in theoretical knowledge (almost nothing was worked out and published on hydrodynamics and hydroaviation);

6) in the design experience in hydroplane building (very few boats were built);

c) materials for the water part of wooden seaplanes (waterproof glue, waterproof plywood, varnishes and coatings);

d) production knowledge;

e) production capabilities (factories and hydrodromes).

To solve the problem in August 1928, the aircraft designer Paul Richard was discharged from France. At plant No. 28, the OPO-4 department was formed, to which specialists and all the experimental aircraft of Grigorovich, who was suspended from work, were transferred. Future general designers N.I. Kamov, M.I. [urevich, S.P. Korolev, I.V. Chetverikov, G.M. Beriev, S.A. Lavochkin. Initially, Richard had a large program to create a dozen different machines. Then it was gradually reduced and only TOM-1, an open sea torpedo bomber, was brought to the construction of a prototype. However, he did not go into the series either. Richard drove off to his homeland, and flying boats still had to be bought abroad. Following the float Junkers, planes of the Italian company Savoy, German Dornier and Heinkel were purchased, some of which were redesigned and built at domestic factories under the brands MBR-4 and KR-1.

All Soviet aircraft were originally equipped with British Lewis and Vickers machine guns. In 1928, by order of the Revolutionary Military Council, the 7.62-mm aircraft machine gun PV-1 was adopted by the Red Army Air Force, which is a remake of the Maxim machine gun, wasp

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based on the project of the pilot and inventor A.V. Nadashkevich. The PV-1 weighed 14.5 kg and had a rate of fire of 750 rounds per minute and a muzzle velocity of 865 m/s. In all respects, it was the same Vickers - and its "dad" was Maxim - transferred from a water to an air cooling system. A Soviet study by D.N. Bolotin reports that, nevertheless, "our system" was superior to the British one, since a buffer spring was introduced in it to increase the rate of fire, "which imparted additional speed to the mobile system when it moved forward and took on the blow when her departure." And this buffer spring was "a novelty that has not yet been used in the creation of machine guns in foreign practice. Another thing is interesting: a modern Russian author repeats the praises of the PV-1 word for word, completely forgetting that forty pages earlier he himself stated that "the rate of fire of Vickers machine guns increased ... due to the strengthening of the buffer springs, which sharply increase the speed of moving parts when shooting."

For turrets to replace the Lewis, a 7.62-mm Degtyarev aircraft machine gun was developed, obtained by altering the DP infantry machine gun. The rate of fire of the DA was 600 rounds/min, the muzzle velocity was 840 m/s. Ammunition was fed from a three-row magazine with a capacity of 63 rounds. Machine gun weight - 11.5 kg. Two years later, the DA-2, a system of two Degtyarev machine guns connected together, entered service. With loaded magazines sparka weighed 25 kg

In 1927, the Red Air Fleet had 698 combat aircraft, an unacceptably small number. After all, according to the doctrine, it was necessary to fight with the entire "external environment". In connection with the "military alarm" M.N. Tukhachevsky reported to the Council of Labor and Defense: "Neither the Red Army nor the country is ready for war." Therefore, speaking

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at the XNUMXth Congress of the RCP (b), People's Commissar K.E. Voroshilov formulated the tasks of industry in the following way:

"The five-year plan for the national economy should proceed from the inevitability of a military attack on the USSR and, consequently, from the need to measure the material resources of such an organization

defense of the Soviet Union, which would ensure a victorious rebuff to the combined forces of our potential adversaries.

What were all the immediate neighbors on the western, southern and eastern borders - from Finland to Japan. It had to be taken into account that this was only the first echelon of world imperialism. The capitalists of England and France dreamed of taking part in the second.

The Decree of the Politburo of the Central Committee of the RCP(b) "On the state of defense of the USSR" dated July 15, 1929 stated that "the technical base of the armed forces is still very weak and far behind the technology of modern bourgeois armies." According to the decree, by the end of the first five-year plan, the air force was to have at least 3,500 aircraft. It was pointed out to the military department that the Red Army was obliged "in terms of numbers - not to be inferior to our potential opponents in the main theater of war, in terms of technology - to be stronger than the enemy in two or three decisive types, namely, in the air fleet, artillery and tanks." In response, the military presented the S-30 mobilization plan, according to which the needs of the army in case of war by the beginning of 1932 were determined at 7,000 aircraft.

On October 20, 1929, the Directorate of the Air Force sent to the STO their proposals "On a five-year plan for the experimental construction of the Air Force for 1928/1929 - 1932/1933." The document noted that the Department's specialists studied 675 types of aircraft of foreign designs, of which 62 types were selected as samples in pilot production. The military asked for additional appropriations to study foreign experience and provide financial support to TsAGI and NAMI.

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By this time, a number of quite modern models of aviation equipment had been created in the USSR. However, the existing plants could not meet the growing demands. Serial aircraft were built at four aircraft factories, besides, "the quality side of the manufactured products clearly lagged behind the requirements of the time." So, by September 20, 1929, plant No. 22 provided only 32 of the 70 ordered I-4 fighters, and military acceptance accepted only two.

The introduction of new samples into the series was slowly progressing. The industry continued to produce the rapidly obsolete P-1, which then accounted for up to 50-60% of all products. There was a shortage of industrial enterprises, their poor technical equipment, and a lack of engineering and qualified workers.

It took a year and a half to hand over a hundred R-3 aircraft, after which they were taken out of production and replaced in the series with the Polikarpov R-5 reconnaissance aircraft.

If it took nine months to create and build a prototype TB-1, then it took four years to organize mass production. However, here the story is more interesting. Initially, Tupolev made a remote-controlled projectile, and ordered it not from the Scientific and Technical Committee of the Air Force, but from the Special Technical Bureau for Military Inventions for Special Purposes (Ostekh-bureau) to implement the congenial idea of the self-taught inventor V.I. Bekauri: the aircraft, stuffed with explosives, took off in the traditional way, followed the target, on the approaching flight the pilot was ejected by parachute, and the aircraft, controlled by the "telemechanical system" by the operator from another aircraft, fell on the target. Therefore, the lead ANT-4 was single-seat and did not have any weapons. He became a "medium bomb carrier" only two years later. In addition, in practice, the construction of all-metal giants turned out to be somewhat more difficult than it seemed at first. Introduction of TB-1! so dragged on that in aviation

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In circles, the issue of copying the French Farman-62 Goliath bomber under the TB-2 index was considered, especially since it was already in the "import version" on

armament of the Red Air Fleet and have proven themselves well in the pacification of the Chechen villages.

In total, in 1928-1929, out of 985 aircraft ordered, the industry was able to issue only 30 TB-1s, 14 I-3s, and a few R-5s.

Engines for them still had to be bought abroad, since neither the design bureau created under Aviatrest for experimental engine building, headed by A.A. Bessonov, nor the Department of Aircraft Engines of NAMI under the direction of A.A. Mikulin, nor the designers of the factories "Ikar" and "Motor", united in 1927 into the plant number-24 named after M.V. Frunze, for five years of work they could not offer anything suitable.

The best technicians of the country dismantled dozens of foreign samples to the last screw, drew on newsprint (the paper was tight) something of their own, surpassing world analogues in all respects, and embodied it in metal - M-8, M-9, M-12, M-13, M-14, M-15, M-18, M-19, M-23, M-26, M-27...

And you turn it on - it doesn't work!

Thus, the Polikarpov I-3 and R-5 machines were originally supposed to be equipped with the M-13 engine, which was developed by engineers N.R. Brilling and A.A. Mikulin. However, all three prototypes of the motor fell apart during tests three minutes after launch, without gaining the promised power of 800 hp; the planes had to install a "weak" and heavy "German". Engines A.A. Bessonov - 18-cylinder M-18, in-line M-19 with a driven centrifugal supercharger - seemed to work, but "for various reasons they did not go into series." M-15 and M-26 were nevertheless "published" for a short time in small batches, but turned out to be unreliable even by Soviet standards; The M-27 was obsolete even before it was made.

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The only achievement of domestic engine building was the 100-strong five-cylinder M-11 engine launched into series in 1928 (development of the GAZ-4 design bureau, suspiciously similar to the French Lorraine-Dietrich 5Pb).

In the meantime, by 1930, Zaporozhye Plant No.-29 (former GAZ No.-6) mastered the production of the French Jupiter-Uf under the Soviet brand M-22, and Plant No.-26 in Rybinsk (former Russian Renault) - serial production of the German motor VMU \ T, designated M-17. Regarding the last People's Commissar K.E. Voroshilov anxiously reported. Stalin:

"October 14, 1927. Aviatrust, at our insistence and choice, concluded a license agreement for installations for our production of a modern BMW-IT engine, which left the experimental stage at the beginning of 1926. More than 2 years have passed; but we have not yet received a single serial motor from Aviatrest; the other day only a small series of 10 motors was presented for delivery. In addition, the most important parts - the crankshaft, rollers (bearings) - are not at all represented in our production, we buy them in Germany and only from August 1929 Aviatrest receives technical assistance from Krupp from them. Also, the production of magneto has not yet been delivered ... The latest in 1927, the BMW-GIG engine, in the process of being put into production for 2 years, runs the risk of becoming obsolete before we give it to supply the modern fleet.

Leading experts of the aviation industry wrote about the same to Iosif Vissarionovich on August 13, 1930: "It is known that in all 13 years we have not created a single finished aircraft engine that would be on our aircraft.

For all the time in the Union, more than 40 aircraft engines were designed by various organizations, 30 of them were put into production, about 15 were built, but not one of them is and probably will not be on aircraft ... Our pilot construction is extremely fruitless".

Of the ten engines of the 1931 plan, four were actually built, and before mass production one arrived.

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Yes, and the saga with the VMU dragged on for a long time, although one of the important reasons for its purchase was the opinion of Aviatrest specialists that: "This motor in production will provide fewer difficulties than any other." The contract with the firm came into force in October 1927. Drawings, technical descriptions, calculations, technological instructions, special tools, equipment, sets of all the most complex parts, crankshafts, gasoline pumps, electrical equipment, as well as about a hundred German engineers and workers were sent from Germany to Rybinsk. The carburetors were installed by the French Zenit 600SU type, which received a Soviet registration under the pseudonym K-17.

Plant No. 26 produced the first M-17s only in the spring of 1930, by the end of the year - 165 copies, then - incrementally.

The only difference is that, unlike the German "boomer", our M-17, having left the assembly line, was unsuitable for operation, and was sent for special revision to the Central Aviation Engine Institute. As noted at the All-Army Conference on the Quality of Aviation Products, the engine had 76 defects. At the same time, due to the violation of technology and the low quality of the materials used, it produced less power and was heavier than the prototype by an average of 30 kg. Casting defects reached 50%, every tenth of the engines accepted by the customer was of a "lower condition", that is, they were suitable only as training aids or for transfer to civil aviation, whose needs were satisfied on a residual basis. In January 1930, the Labor and Defense Council instructed Plant No. 24 to master the M-17 as well. A set of drawings was handed over to Moscow, but the Germans were not handed over. At the factory, they thought over the drawings and decided to simplify and improve the design. As a result, 30 "substandard" engines were manufactured, in which not one piston was like another, after which production was curtailed.

Head of the Red Army Air Force Ya.I. Alksnis in July 1932 reported to the Revolutionary Military Council: "The quality of the M-17 engines has dropped so much that every off-aerodrome flight

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on this engine, it becomes a serious risk not to return, but to have an emergency landing with all the ensuing consequences. It took the Rybinsk plant another year to significantly improve the quality of its products, bring the engine life up to 150 hours and achieve maximum productivity.

Relatively simple, reliable, well mastered in production and operation, running on low-quality domestic fuel, which was in production until 1939, the M-17 became the most massive aircraft (and tank) engine, replicated in the amount of 27,534 copies.

On July 31, 1930, Deputy Commissar of the Military Sea I.P. Uborevich reported to the Politburo that the plan for the military order for industry was being fulfilled by barely 10-15%.

Of course, there was no harm done here. Red people's commissars and directors categorically did not want to sign for voluntarism and their own illiteracy. The liberated proletarians, who became the "leading class", could not, by definition, spoil their native authorities. This means that the "caste of old specialists of tsarist Russia", who maliciously sabotaged the program of socialist industrialization, was to blame for the disruption of all plans.

It turned out that every third engineer, especially those who received a pre-revolutionary education, and even more so of non-proletarian origin, is a pest. Instead of Germany, the son of a "clergyman", who did not hesitate to wear a family Orthodox cross around his neck, N.N. Polikarpov found himself in the Butyrka prison. During the investigation, he was reminded of many things, including the fact that during the investigation

the crew of the pilot V.N. Filippova. With the naked eye, "sabotage" was visible in the scheme of the Polikarpov I-1 (IL-400) fighter - a monoplane: the criminal intent was that in the event of a nose-over

cars

thirty

"Red Falcons" would beat their heads on the ground, losing their health and professional skills - that's the undermining of the defense capability. In addition, Polikarpov sabotaged the execution, to put it mildly, of a wonderful order for the design of a two-seat small-sized aircraft "serving cavalry" in long-range raids OK-1. It was assumed that this apparatus with folded wings would be dragged by the tail along the valleys and over the hills by a cavalry cart; if necessary, the design was to be brought into flight readiness in 15-20 minutes.

Nikolai Nikolaevich did not resist for long, admitted his participation in the preparation of foreign intervention, and without trial was sentenced by the OGPU board to be shot as a spy and a "socially alien element." Other "saboteurs" awaited "just revolutionary retribution" in neighboring cells: the author of the first serial fighter, D.P. Grigorovich, employees of his seaplane department V.L. Corbin-Kerber, E.I. Majoranov, A.N. Sedelnikov, N.G. Mikhelson, the creator of the aviation machine gun A.V. Nadashkevich, engine builders N.R. Brilling, B.S. Stechkin, A.A. Bessonov, A.D. Charomsky, designers V.A. Tisov, I.M. Kostkin, V.V. Kalinin, statistical testing engineer P.M. Crayson and others.

But someone had to make fighter jets. Therefore, in the order signed by the Chairman of the Supreme Economic Council of the USSR V.V. Kuibyshev and Deputy Chairman of the OGPU G.G. Yagoda was instructed: "The organs of the OGPU should take all measures to ensure that wrecking engineers are used in the correction of sabotage."

In December 1929, a group of prisoners of about 20 people, led by Grigorovich and Polikarpov, were offered to prove their devotion to the Soviet Motherland by deeds and, within three months, create a fighter aircraft that would outperform similar machines of potential enemies. Drawing boards were placed in two cells of the Butyrskaya prison, pencils were brought in and it was called the Special Design Bureau.

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As brilliantly formulated by G.G. Yagoda: "Only working conditions in a militarized environment can ensure the secrecy and effective activities of specialists as opposed to the corrupting environment of civilian institutions."

In January 1930, the design bureau (soon renamed TsKB-39) was relocated to a guarded hangar on the territory of plant No.-39 named after V.R. Menzhinsky. The process, as they say, has begun.

Already in April, the prototype of the fighter, which went down in history under the name VT-1], "inner prison, model 11" (or otherwise "pests to workers"), took off from the take-off field of the Central Airfield. The tests went extremely smoothly, the biplane, which received the I-5 index, was launched into a series with the M-22 engine and built at factories No. 1, No. 39, No. 21 until the end of 1934 on secrecy, the Chekists forbade the "saboteurs" to carry out blowing models and other types of tests in institutions and laboratories outside their jurisdiction).

"Motherland" highly appreciated the merits of Grigorovich, Polikarpov and other prisoners of the inner prison: "former wreckers who repented of their previous deeds" were provided with a special ration in a special canteen, they were allowed to walk in a special kindergarten, they were allowed to see them once a week wives and children, and, finally, they were escorted. True, not all and not immediately. For example, N.N. In March 1931, Polikarpov was replaced by execution with ten years in the camps, then in June the OGPU board decided to consider the sentence suspended, and finally, in July, a group of convicts

designers, including Polikarpov, was amnestied by a decree of the Central Executive Committee of the USSR. They had to work in their original place, in the Central Design Bureau of Plant No. 39.

The Chekists considered the experiment with the "militarization" of engineering thought to be successful and, in order to provide the aviation industry with new promising models in the shortest possible time, they decided to concentrate the work of an experimental

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aircraft construction in their sterile, cologne-smelling hands. As a result, TsKB-39 and the design department of TsAGI were soon merged into a single design organization under the general control of vigilant authorities.

The main core of the Central Design Bureau were designers and calculations from the teams of Grigorovich, Polikarpov, Richard's group, as well as replenishment from other plants. The number of designers was increased at the expense of civilian specialists, among whom were A.S. Yakovlev, V.B. Shavrov, A.N. Rafaelianz. The staff of TsKB-39, which became part of the Technical Department of the Economic Directorate of the OGPU, was about 300 people. Aircraft draft designs were made in the General Views Department, after which they were reviewed and approved by the decisive authority — the Technical Council of the Central Design Bureau. Further drawings were developed by the design department. In parallel, groups and departments worked on aerodynamics, strength, models and layouts, drawing control, armament, naval aircraft, production preparation, static and flight tests. V.B. Shavrov recalled:

"The GPU, which had put a lot of engineering and technical workers of the older generation, decided to take over the pilot construction of aircraft. Like, in this situation, there will be no sabotage. The head of the Central Design Bureau was a two-rhombus hepeust, above it was a three-rhombus, and above this - a four-rhombus. Above is Yagoda, and above Yagoda is Menzhinsky. There were also lower ranks.

The GPU decided to gather at the plant number-39 all those who worked for Richard, Polikarpov, Bartini. And, first of all, a comprehensive work plan for the Central Design Bureau was drawn up. And this plan was based on the following assumption: Tupolev has been building an experimental aircraft for four years, and we will build it in three weeks. We have three hundred people on staff, so we will throw everyone on one task in order to complete it quickly. The Central Design Bureau is a powerful organization that, having leaned heavily on any task, will be able to quickly complete it. The GPU was convinced that this would be the case.

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Some of the people in the Central Clinical Hospital were free, and some were "arrested". We, the freemen, were subordinate to the latter, although they lived in custody and could not even leave the factory. The arrested were our bosses, and above them - the GPU, which constantly interfered in everything.

In the fall of 1931, TsKB-39 was reorganized. Centralized design was replaced by a system of end-to-end crews specialized in aircraft classes. Brigades were formed: fighters (N.N. Polikarpov), scouts (S.A. Kocherigin), long-range aircraft (P.O. Sukhoi), naval aircraft (I.I. Pogossky, I.V. Chetverikov), screw apparatus (A.M. Izakson), weapons (A.V. Nadashkevich), propellers (V.L. Aleksandrov), wheels and skis (A.I. Mashkevich), standards and normals (P.A. Dudukalov) and others. A little later, a brigade for long-range bombers (S.V. Ilyushin) and the Joint Bureau of Standards (OSSA) were formed.

There were many objects in the work plan of TsKB-39. However, the hopes for the speedy production of new aircraft did not materialize. Design and construction did not go faster than before, the quality was not higher, and many objects were not started at all. For a year and a half of its existence, the Central Design Bureau produced two types of attack aircraft, a two-seat fighter DI-3, a bomber TB-5, a naval reconnaissance aircraft MDR-3, and a cannon fighter was launched. None of these products of prison creativity was ever adopted.

Again V.B. Shavrov:

"The system invented by the GPU has not justified itself. She was completely bankrupt. It turned out that no matter how much you throw people at one thing, it will not go faster from this. If, for example, there are thirty pairs of ribs of different sizes on an airplane, this does not mean that these ribs can be made in two days... After all, someone usually calculates the wing. Yes, and any aircraft unit is made by a limited number of people, and if their number is increased, then there will be little use from this. The GPU did not understand this simple truth,

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but at the very first construction of TSh attack aircraft, this system fully showed its shortcomings. For six months everything was in a stormy movement: pressure from above, overtime, but no results. The work proceeded exactly as if normal work were being done on this machine."

According to A.S. Yakovleva: "The organization was crowded and stupid, the costs were high, and the return was weak."

In January 1932, the division of TsAGI and the Central Design Bureau took place, and a year later, the head of the Main Directorate of the Aviation Industry, P.I. Baranov signed an order to organize a new Central Design Bureau based on Aircraft Plant No. 39. S.V. Ilyushin.

Engine designers, concurrently prominent members of the Industrial Party, A.A. Bessonov, N.R. Briling, B.S. Stechkin, N.N. Bobrov was also lucky: instead of a voucher to Solovki for a period of three years, they were offered "to atone for their guilt before the working people" at the Special Technical Bureau of the OGPU, located in the center of Moscow at plant No. 24. There they created a number of "progressive" motors, which received the names of the most titled executioners - a thousand-horsepower aircraft FED-8 ("Felix Edmundovich Dzerzhinsky"), an engine for the YAGTG submarine ("Yagoda Genrikh Grigorievich"), an automobile diesel engine KOJU ("Koba Dzhugashvili") - which were never useful to anyone.

By the beginning of the second five-year plan in the Soviet Union, enterprises reconstructed during the years of the first five-year plan were increasing their production rates; At the same time, new aircraft factories were put into operation. So, in 1931, the laying of Plant No.-19 named after Stalin in Perm and Plant No.-16 in Voronezh took place, which were designed for the production of air-cooled engines, and in 1932 - No.-27 in Kazan for the production of

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liquid-cooled engines and aviation plant No.-125 in Irkutsk. Plant No. 21 in Gorky began to produce products. To meet the growing needs of the Soviet aircraft industry for special design materials from aluminum and its alloys, an appropriate metallurgical base was created. For example, in 1933, near Moscow, the construction of plant No. 95 for the production of aluminum pipes, sheets, profiles and

etc.

In January 1932, after the abolition of the Supreme Economic Council of the USSR, military factories were transferred to the administrations and trusts of the People's Commissariat of Heavy Industry. At that time, Glavaviaprom included 17 factories, seven of which produced aircraft. Aircraft factories No. 18 in Voronezh and No. 81 in Tushino were built.

Thus, a base was created for the construction of their own aircraft. At the beginning of 1933, the leadership of the Air Force approved a plan for the development of experimental aircraft construction for 1933-1934, the implementation of which was supposed to lead to a qualitative leap in domestic aviation technology. During these years, it was planned to create new bombers with ten engines and a twin-engine K-1 at TsAGI, in the GU GVF system - a bomber Kh-1 with two three engines, at the Kalinin Design Bureau - a twin-engine VS-2. Task for the new I-13 fighters,

I-14 was issued by TsAGI, and I-15, DI-6 - by TsKB. The plan provided for the creation of reconnaissance and attack aircraft LR, TSh-3, training vehicle U-3, gyroplanes, helicopters, aircraft with a jet engine, and so on.

Despite the creation of its own industrial base, dependence on the West continued to persist. There was a shortage of qualified personnel, there were no materials necessary for aircraft construction in the required quantities, not all technological and production processes were sufficiently mastered. The lack of domestic engines mastered in production and tested in operation limited the launch of new models into mass production.

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aviation technology. The resolution of the Revolutionary Military Council of the USSR noted:

"While almost all foreign air fleets have already switched to high-altitude engines, which sharply increase the speed of the aircraft at high altitudes, its rate of climb and practical ceiling, our industry has not yet produced a single engine with a supercharger, even in an experimental sample for state tests ... "

Most of the combat aircraft produced were of poor quality.

Soviet engine engineers continued to play "constructor": they thoughtfully dismantled foreign models and assembled domestic ones from them. In 1930-1935, aircraft engines M-30, M-31, M-32, M-37, M-38, M-41 were tested (any of the six listed aircraft designers were ready to take for new I-9 fighters and I-10, but "the engines did not come out by the deadline", and the aircraft were not built), M-44, M-56, M-58 ...

Everything turned out at the world level, even better. Just turn it on and it doesn't work. The only achievement of the domestic engine building was the M-11 motor, a thing, no doubt, necessary, but suitable only for apparatuses of the "maize" type.

It became clear that one cannot fully rely on one's own industry, especially when it comes to high technologies and new designs. Therefore, in the spring of 1933, samples of the latest inventions in the field of television, telemechanics and radio were purchased from the German firms Telefunken, Siemens and Fernsee for the needs of the air force: a television installation for an aircraft, 6 sets of aircraft transceivers - general radio stations for bomber, attack and reconnaissance aircraft, 6 sets of radio stations for fighter aircraft, 10 sets of instruments for night flights, 2 sets of airfield and aircraft radio stations.

Acquire licenses for the production of modern aircraft engines (together with technological

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documents, necessary machine and tool equipment) two delegations went at once. One, headed by the future chief designer of the Rybinsk plant V.Ya. Klimov bought six aircraft engines from three French firms. Another, under the leadership of the head of CIAM I.I. Poberezhsky, got acquainted in America with Curtis-Wright engines.

The tour in France ended with the acquisition of a license for a Hispano-Suiza liquid-cooled motor. Its release under the index M-100 was entrusted to plant No.-26. And before that, in Rybinsk, they were going to organize the assembly of American Curtis V-1800 Conqueror engines. Considerable sums in hard currency were spent on the reconstruction of the plant, on the purchase of a license, tools and devices necessary for the development of the "American". Under the "Conqueror" in TsAGI, the I-8 fighter (ANT-13) was already built, which showed on tests

speed of 310 km/h — a record for the USSR. But the Kremlin thought about it and decided: we will still introduce the “Frenchman”. And they allocated new appropriations - for machine tools, equipment, special tools, I-8, due to the lack of an engine, “had no continuation.” In addition, for the development of plant No.-29, they bought an outstanding engine from the company “nom-Ron” - a two-row 14-cylinder star “Mistral-Major” 14K gs with a take-off power of 850 hp.

(An interesting story happened at the end of 1938. After the occupation of Czechoslovakia by German troops, the French, having assessed the deplorable results of the “appeasement policy”, realized and decided to improve their aircraft fleet qualitatively, and at the same time double its quantity. Three concerns at once received large orders from the Ministry of Aviation for the production of a modern M\$-406 fighter, but almost immediately it became clear that the engine for it - the Hispano Suiza 12U - was produced by a single plant, which physically could not provide for everyone. Problems

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French officials knocked on the door of the Soviet trade mission and asked to sell at least 200 Rybinsk brand engines. Stalin refused).

As a result of a trip to the United States, the General Directorate of the Aviation Industry acquired in 1933 150 radial nine-cylinder Wright Cyclone B-1820 E-3 engines with a rated power of 625 hp. and weighing 435 kg. Most of them were sent to the troops, and a few copies were sent to the brand new Perm plant, equipped with the latest technology, where, through the efforts of chief engineer A.D. Shvetsov, with the technical assistance of American specialists and on American equipment, the production of the M-25 engine was launched in 1934.

By the end of 1933, a number of new aircraft models were created in the USSR. The soloists were the designers N.N. Polikarpov and A.N. Tupolev.

The team led by A.N. Tupolev, who had a solid backlog in the form of an all-metal bomber TB-1 | and the R-6 multi-purpose aircraft, started designing aircraft with flight weights of 20, 30 and 40 tons. TB-3 (ANT-6) became the first among superheavy machines. By the way, it was also built by order of Bekauri and at the expense of the Ostekhburo, as a “special-purpose aircraft cruiser” capable of carrying mines, anti-submarine bombs, 20-inch radio-controlled torpedoes with a spiral course and transporting cargo on an external sling with a total weight of not more than less than 2000 kg The prototype took off on December 22, 1930. According to the test results of the Air Force Research Institute, the following conclusion was drawn: “The aircraft... according to its flight data is quite a modern heavy bomber, standing on a par with the best foreign aircraft.” ANT-6 with M-17 engines was recommended for serial construction, which was launched in the spring of 1932 at plant No. 22, and then at plant No. 39.

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The bomber was an enlarged version of the TB-1, made of corrugated aluminum mail, with four engines, a flight weight of 17,400 kg and a wingspan of almost 40 m. The maximum speed was 197 km/h, the practical ceiling was 3800 m, actions - 1350 km. In the series, the glider turned out to be 10-12% heavier (correspondingly, 20 km/h slower), the difference in weight between individual machines reached tens, and sometimes even hundreds of kilograms:

“The reasons were mainly the greater thickness of the sheets and pipes due to the inevitable positive tolerances, the addition of equipment and weapons with their fasteners, the addition of structural components related to the needs of operation (brackets, partitions, seats, steps) . It was found that many electrical wires have a cross section that is much larger than required by the current strength, that the welding seams are rough, and the chassis bogies are unreasonably heavy. Experimental aircraft went to the airfield covered with a thin layer of varnish, and in the series their protective coloring was done very roughly with a spray gun, the layer of varnish and paint was thick. On experimental aircraft, everything was done cleaner. In cases of replacement of XMA steel with mild steel grade M

thickness increased accordingly. In addition, the wing mounting brackets were made in "place", and the docking bolts were non-standard in length and diameter, poor fitting of aircraft parts and careless processing of joints, careless riveting and undertightness of bolts, cracks and dents in the skin were noted. Each bomber was "individual", and similar parts from one aircraft did not fit another. During operation, water radiators collapsed, pipelines broke and flowed, fuel tanks crawled at the seams, paint swelled and flew around in tatters. In a word, the assembly technology in terms of level clearly did not correspond to the complexity of the advanced design.

The aircraft was equipped with retractable rotating towers in the center section, cluster and beam-type bomb racks for 3000 kg of various bombs weighing up to

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1000 kg and radio equipment. Small arms — Tur-6 turret with a single or twin DA machine gun in the nose of the fuselage, two wing turrets with one DA, rollable Tur-5 turrets behind the wing with one or two DAs. Ammunition - 100 discs of 63 rounds. The crew consisted of eight people: the commander of the ship, the second pilot, the navigator-scorer, two air gunners, the senior technician (mechanic), two junior technicians - they are gunners in the towers.

True, on the first serial machines, much of the above equipment was absent: there were not enough sights, bomb racks, machine guns, and the production of radio stations was just being adjusted. Therefore, the planes were handed over to the troops on a "conditional basis" — under a letter of guarantee from the factory with communication, send everything missing as they arrived. As of January 1, 1933, 144 TB-3s were in service with the Air Force, and another 307 were produced during the year.

On the ground, the airship was serviced by 5 mechanics. Filling only one gas tank with a capacity of 1950 liters took three and a half hours, and there were four such gas tanks. It was necessary to pour 10-12 liters of water into the cooling system of each motor. For ground handling, it was planned to develop a series of specialized vehicles and trailers, but in practice, auxiliary equipment, as a rule, was absent. For example, "complete" with a bomber, to move the aircraft around the airfield, the Kommunar tractor was supposed to. In real life, this problem was solved by 40-50 Red Army men under the guidance of a senior technician.

The question of the need to modernize the TB-3Z arose almost immediately after testing the prototype. It was planned to replace the M-17 engines with more powerful ones, to strengthen the bomber and defensive small arms. Increased aircraft strength, flight speed and ceiling.

By this time, the team of A.A. Mikulina brought and

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introduced into serial production at the Moscow Plant No.-24 the first, truly domestic, liquid-cooled engine M-34, created on the basis of VM \ U \ M. I confess how the M-34 was fundamentally different FROM the "dad", I still didn't figure it out: the same dimensions, the same 12 cylinders of the same diameter, the same piston stroke and camber angle. Except that in the Mikulin engine: "The cylinder blocks, the upper and lower half of the crankcase were pulled together by pins into a single power circuit, free from the action of tensile forces", and the entire "original" design was "subordinate to the idea of rigidity". At the same time, the dry weight increased from 540 kg to 670 kg, and the rated power increased from 500 hp. up to 750 hp

For the creation of the M-34 A.A. Mikulin was awarded a personal car and was appointed chief designer of plant No. 24, and the engine was henceforth ordered to be called AM-34.

Tests showed that with the new engines, the bomber had a better rate of climb, but the maximum speed unexpectedly decreased. In September 1933, geared M-34Rs with new propellers 4.4 m in diameter were installed on the TB-3. In addition, the tail section was changed, where another firing point was installed. After testing, the TB-3-4M-34R variant was accepted for serial construction as a standard for 1934. Despite the increased flight weight, the aircraft's flight characteristics have improved.

Specialists of the Ostekhbyuro stubbornly and unsuccessfully tried to convert some of the machines into telemechanical ones. Only this time, flying up to the target, the pilot of the "air fire-ship" did not eject with a parachute, but transferred to a fighter suspended under his belly. Under the projects of an enterprising and punchy Georgian, who before the revolution designed safes and mechanical toys, illiterate "legendary commanders", fascinated by the prospects of telemechanical warfare, in which the enemy will be smashed by red teletanks, radio-controlled airplanes, armored trains, torpedo boats and submarines.

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BOATS of "wave control", remote-guided torpedoes and floating mines, self-cocking machine guns, flamethrowers and gas-throwers, knocked out millions of gold rubles even in the most famine-stricken times. Laboratories and design bureaus with a powerful production and experimental base, workshops, factories, aircraft and hangars, a whole flotilla of ships, their own radio station and their own airfield, a base near Sevastopol were placed at the disposal of the Ostechbureau in Moscow and Leningrad; there was an opportunity to involve any specialists in the work. The only pity is that in the war with the Germans, almost none of the brilliant inventions of V.I. Bekauri was not useful, and what was useful did not have any influence on the outcome of hostilities, except, perhaps, for special communications.

Work on the modernization of the TB-3Z continued in 1935: new M-Z4RN engines (with centrifugal superchargers) with a capacity of 840 hp were installed on the aircraft. During the last stage of improvement, the bomber was equipped with uprated M-34FRN engines (950 hp at an altitude of 5000 m), which made it possible to squeeze 288 km/h, cantilever fuel tanks were introduced, underwing turrets were replaced with a "dagger" installation in fuselage hatch, improved local aerodynamics, made changes in the controls. In this form, serial production was completed in 1936-1937. Everything was taken from the car. For a fundamental improvement in performance, it was necessary to switch to a new type of aircraft with a smooth skin and retractable

landing gear flight.

We call TB-3 "the world's first cantilever bomber monoplane with engines installed in a row along the span in the wing toe". True, the first was the same Hugo Junkers. It was just that the Germans were forbidden to build military vehicles and a cantilever all-metal monoplane with four 800 hp engines installed in a row in a thick wing, which took off in November 1929, served as their passenger aircraft. But the Japanese, having bought

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license for the Junkers (38, turned it into a full-fledged bomber. It weighed 23,000 kg, flew at a speed of 200 km / h, the flight range reached 3400 km, the ceiling - 3700 m. The armament consisted of 1] turret machine guns and 3000 kg of bombs Crew of 10. During 1931-1934, the Mitsubishi company supplied the Air Force of "militarist" Japan with six heavy bombers of the Ki-20 brand. In the spring of 1938, 818 aircraft (each costing a quarter of a million rubles) of various modifications were built. We note that this is the result of the underfulfillment of Stakhanov's plans, in fact, it was planned to have 1440 "air battleships".

The large-scale construction of aircraft of this class required a completely new organization of production, the development of new technological processes and the formation of a detachment

highly qualified engineers and workers.

In 1931-1933, the designers of the scientific and technical department of plant No. 67 developed a line of high-explosive bombs (FAB) of caliber 50, 100, 250, 500, 1000 and 2000 kg. shells.

With the adoption of the TB-3 by the Soviet Air Force, the formation of long-range bomber aviation began.

The aircraft took part in many military affairs, but the most spectacular page in the biography of the TB-3 was the raid of a group of bombers from the Hankou airfield on the island of Kyushu, which took place on May 20, 1938. Six TB-3s with Chinese markings crossed the East China Sea, proudly sailed early in the morning over the ports and naval bases of Sasebo, Nagasaki, Fukuoka and, dropping a MILLION LEAFLETS on the heads of the dumbfounded Japanese, "stigmatizing the militarists who unleashed war in China," she walked away proudly. According to the official version, the squadron was commanded by the hero of the Chinese people, Lieutenant Colonel Xu Huangshen, in the world

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senior aviation adviser, thoroughbred crest, commander G.I. Thor. The slap from Tokyo resounded throughout the world. At the end of the operation, the Minister of War of the Kuomintang government announced that the planes of the Chinese Air Force were in no way inferior to those of the Japanese and were capable of bombing any targets on any of the islands of the Japanese archipelago.

There is an oddity in that the details of this raid are still unknown. Maybe they weren't Chinese planes, maybe they weren't TB-3s, or maybe they didn't take off from a Chinese airfield...

At that time, it was believed that speed was not so important for a bomber, the main thing was to take more bombs. Therefore, military comrades demanded from the designers the development of bomb carriers with a payload of 25 tons and a wingspan of about 100 m. The development of super-heavy aircraft followed the path of increasing dimensions with an unchanged general scheme and an almost constant specific wing load. In 1933, by doubling the area and mass, Tupolev from TB-3 created a six-engine "class 1 battleship" TB-4 (ANT-16), weighing 33 tons. It was supposed to carry up to 10 tons of bombs in various combinations in the bomb bays, fly at an altitude of 7000 m, reach a speed of 250 km / h. The crew consisted of 12 people.

"TB-4 made me forget about character and habits," recalled test pilot P. Stefanovsky. - He was amazing! A man of average height walked freely not only in the fuselage, but did not bend down in the central part of the wing either. The equipment of the monstrous machine resembled a small industrial plant. There was even a real small-sized power plant for autonomous power supply of all aircraft units."

The aircraft, "in view of the failure to meet the tactical and technical requirements", was not accepted into service, but the idea was not abandoned.

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A further development was the giant airplane ANT-20 "Maxim Gorky". By design, it was a TB-4, which grew even more in size. Its maximum takeoff weight was 53 tons, the wingspan was 63 m, and the fuselage length was 32.5 m. Moreover, two engines were carried into a tandem installation located on top of the fuselage. The crew consisted of 8-10 people, the comfortable passenger compartment was designed for 72 people. The living quarters occupied an area of more than 100 sq. m. The military version provided for the following weapons: a ball turret with an Oerlikon cannon and a rolling turret for the same cannon; Tur-5, Tur-6 (tail) and dagger installation - with DA machine guns, wing and closing turrets with ShKAS machine guns, air bombs. Fortunately, only two copies were built.

Almost simultaneously in 1933, the original aircraft designer K.A. Kalinin in Kyiv built the giant aircraft K-7, which was an elliptical wing of a thick profile with a span of 53 m and an area of 452 sq. m, from which there were two tail booms carrying horizontal and vertical tails with a turning mechanism. In the wing there were rooms for people and cargo. The aircraft was equipped with seven M-34 engines.

K-7 was designed as a multipurpose vehicle for civil and military use. The passenger version provided for the placement of 120 seats for passengers in the wing of the "airbus" and their transportation over a distance of up to 5000 km. The military version was a "flying fortress" with up to 12 firing points - 8 cannons of 20 mm caliber and machine guns. To deliver the shooters to the two tail machine guns, a special electric cart was designed, moving along cables inside the tail boom. The bombing equipment was located in the wing, and to lighten the weight, the bomb rack beams were included in the supporting structure of the wing. The supply of bombs fluctuated depending on the range of use from

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10 to 16.6 tons. The use of external tanks guaranteed a flight range of 2,400 km with a bomb load of 6 tons. The landing version of the aircraft was designed for 112 paratroopers. The possibility of transporting an 8.4 ton tank chassis or other equipment dropped by parachute between the trolley was considered. However, after the accident with the prototype, the project was mothballed and soon closed.

But this is not the limit. Students of the Air Force Academy under the guidance of Professor S.G. Kozlov built a flying wing with an area of 600 square meters, equipped with a "comrade Dziuba's unit": six pairs of engines hidden in the wing transmitted rotation to six vertical shafts, which in turn spun six huge propellers mounted on columns. In addition to the delivery of the bomb cargo to the destination, the Giant, ordered by M.N. Tukhachevsky, was supposed to be used to transport tanks. To load armored vehicles, he ("Giant") had a lowered platform, which was part of the wing.

The Tupolev team developed a project for a 12-engine 70-ton ANT-26 (TB-6) aircraft with a crew of 17 people and its transport version ANT-28. This aircraft was to have a wingspan of 95 m and an area of 800 sq. m, speed - up to 300 km / h. Estimates were made of flying monsters with a wingspan of up to 200 m.

However, the age of low-speed low-altitude corrugated giants has passed. The development of anti-aircraft artillery and fighter aviation forced the use of heavy-weight air dreadnoughts as transport and passenger aircraft.

The concept of a light fighter, first embodied in the I-5 aircraft, received further development in the USSR.

Until 1933, fighters in all countries were predominantly biplanes or sesquiplanes,

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extremely light in weight and highly manoeuvrable. Then came the monoplane fighter, which had greater speed but reduced maneuverability compared to the biplane. In this regard, the idea of combat interaction of different types of machines complementing each other was born. High-speed monoplanes were supposed to catch up and intercept the enemy. Less fast, but more maneuverable biplanes - destroy it in air combat. Maneuverable fighters were led into battle in a horizontal plane, hence the smallest turning radius needed to enter the tail of the enemy was of great importance.

The improvement of maneuverable fighters was carried out by the consistent development of the biplane scheme based on the improvement of the aerodynamics of the layout, while maintaining a relatively

low specific load on the wing, and the use of more and more powerful and high-altitude motors. Lem most ensured an increase in maximum speed, an increase in altitude, soon lift and ceiling, and with excellent maneuverability of the aircraft.

The use of a monoplane scheme with a simultaneous reduction in the wing area and the use of thinner airfoils made it possible to sharply reduce drag. At the same time, retractable landing gear and a smooth, rigid airframe skin were used. The area of the wing at a given mass was reduced by a factor of 2–2.5. This led to an increase in the specific load on the wing from 70-100 kg/sq.m for heavy monoplanes of the early 1930s to 140-170 kg/sq.m for high-speed monoplanes. As a result, the total drag decreased by a factor of 1.5-2, and the flight speed increased by 20-30% with the same engine power and flight altitude. The transition to a high-speed monoplane became possible thanks to the use of new materials and technologies. In aircraft construction, clad duralumin, high-strength steels, high-strength light alloys, improved wood, etc., have become widely used.

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The negative fact of the transition to the high-speed monoplane scheme was wing stall at high angles of attack, an increase in takeoff and landing speeds due to an increase in the specific load on the wing, and an increase in turn time. On the other hand, the power of aircraft engines achieved by 1932-1933 did not give the first high-speed fighters any advantages in vertical speeds and climb speeds over maneuverable biplanes.

Therefore, for some time, two types of fighters developed in parallel.

In October 1933, flight tests of Polikarpov's new machine began (who managed to interest Yakov Alksnis in it and get a personal brigade under his command) - a single-column sesquiplane of mixed design TsKB-3 (wings - wooden with linen sheathing, fuselage - welded from chromium-molybdenum pipes, plumage - duralumin), later called I-15. The upper wing was made according to the "gull" scheme. The innovation not only improved visibility from the cockpit, reduced drag, but also dramatically increased maneuverability. The center section adjacent to the fuselage created such a significant side surface that the aircraft could literally fly "on its side", with a roll of 90 degrees. The idea was also to introduce a retractable landing gear and a closed cockpit canopy, but these ideas could not be put into practice.

With the Wright Cyclone engine purchased from the USA, the fighter, weighing 1370 kg, developed a speed of 360 km/h at an altitude of 3000 m. In terms of horizontal maneuverability, it had no equal: the turn time was 8.5 seconds, a record short for a fighter. Armament consisted of two to four PV-1 machine guns. True, the lightness of the design to some extent turned out to be achieved at the expense of quality, and the customer expressed doubts about the justification of the "gull" type wing, which, in his opinion,

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made it unacceptably difficult to see during takeoff and aiming, and led to a deterioration in directional stability. But the pilots immediately fell in love with the aircraft precisely for its stability in all modes, ease of piloting, ease of performing maneuvers and excellent takeoff and landing qualities. The review of the famous tester M.L. Gallaya: "It was a very light, exceptionally well-controlled aircraft, possessing an amazing ability to stay steadily in the air in almost any position."

Since 1934, serial construction of the I-15 began at factories No. 39 and No. 1, which was produced in the amount of 384 copies in two years, and then, due to the negative attitude of the Air Force leadership, was nevertheless removed from production, and already in 1937 began to be withdrawn from service.

Maneuverable fighters were built at this time in other countries.

In the summer of 1933, the first fighter of actually Nazi Germany took off - the classic Ne-51 biplane with a VMU-UT engine, which was a further development of the Heinkel NO-37 fighter (which was produced in the USSR from 1931 to 1934 under the brand name I-7). The aircraft was mass-produced from April 1935, was armed with a pair of synchronous 7.92-mm MS-17 machine guns with 500 rounds per barrel, and had a number of advantages: its take-off and landing properties, stability, diving qualities could serve as an example. A radio transceiver was installed on the fighter, which the Soviet industry failed to achieve even ten years later. At the same time, in terms of speed (315 km/h), rate of climb and maneuverability, the Ne-51 was noticeably inferior to the I-15.

Almost identical, with the same armament, but more maneuverable and high-altitude machine was the most massive pre-war German fighter Ag-68 with a liquid-cooled engine "Junkers" Lito 210E, which entered service with the Luftwaffe at the end of the summer of 1936

of the year.

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In 1933, the Italian biplane Fiat SV-32 made its first flight. It was equipped with an in-line liquid-cooled motor of 600 "horses", which accelerated a two-ton car to 354 km / h. Armament consisted of two 7.69 mm synchronous machine guns. On the SK-3261\$ modification, which left the assembly line in the spring of 1936, two more machine guns were added, mounted on top of the lower wing outside the propeller disk. In the summer of 1937, to the detriment of maximum speed and rate of climb, the armament of the fighter was once again strengthened by mounting two Breda-ZAREAT machine guns of 12.7 mm caliber in the forward fuselage.

At the end of 1933, the brigade N.N. Polikarpova presented a new initiative project - a low-wing cantilever of mixed design (this time the fuselage was wooden, and the center section frame was metal). It had three fundamental features: unusually small dimensions, a small margin of longitudinal statistical stability and a very low takeoff weight. The I-16 type 5 serial fighter with the M-25 engine (the Russified Wright Cyclone E-3) weighed 1508 kg and at an altitude of 4000 m developed a speed of 445 km / h. It was fitted with an 8 mm thick armored back for the pilot and retractable landing gear. Armament consisted of two ShKAS wing-mounted machine guns with 900 rounds each.

And it has not been without its critics. The quartermasters were indignant at the too long take-off run of the aircraft, which reached 250 m (70 m for the I-15 biplane, 300 m for the TB-3 heavy bomber), which required lengthening of the airfield runways. Pilots, especially those of average qualification, did not like the high landing speed, the complicated piloting technique compared to biplanes - the insufficiently stable aircraft was strict in control, reacted energetically to the slightest movement of the handle and did not forgive mistakes. However, M.M. Gromov, and M.L. Gallai also noted in his memoirs that the I-16 "was unboostable and had poor visibility", "even with not very gross inaccuracies in the pilot's actions, he willingly fell into a tailspin", and they can hardly be called medium-skilled pilots.

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cations. This instability was deliberately set by the designer, who combined the center of gravity and the aerodynamic focus of the aircraft at one point - all for the sake of achieving, along with high speed, maximum maneuverability in combat. The military also did not like the sliding canopy of the cockpit. Pilots argued that it restricts freedom of movement and obstructs visibility, and most importantly, it can cause, if necessary, to leave the aircraft in a critical situation. As a result, the closing canopy was abolished, and the cockpit became open, which somewhat reduced the flight performance of the machine. Nevertheless, it was the best and most massive pre-war Soviet fighter, which had been in production for seven years.

The I-15 and I-16 aircraft, which marked the beginning of a qualitatively new stage in the development of Soviet aviation, brought N.N. Polikarpov the glory of the "king of exterminators". These machines

constantly improved, modernized and were in service with the Soviet Air Force until 1943 year inclusive.

At the same time, active work was carried out to create cannon and two-seat fighters. The latter, intended to escort heavy bombers, were given a prominent place. With the biplane scheme, there was no significant difference in speed between single and double fighters, in air combat they were considered practically equivalent, and the presence of a second crew member ensured greater versatility in the combat use of the vehicle as a reconnaissance, light bomber or attack aircraft. However, it was not possible to create anything worthwhile in this class. Projects DI-3 and DI-4 were implemented in single copies. At the end of 1934, the brigade S.A. Kocherigin and V.P. Yatsenko, a two-seat one and a half plan DI-6 was produced with retractable landing gear and an M-25 engine, which developed 370 km / h and was armed with three machine guns. The aircraft had good speed and maneuverability.

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In general, it was not bad at the time of creation. But it was hardly worth launching it into a series in 1937 at three factories at once, in order to eventually produce 220 obsolete machines. With the transition to a monoplane cantilever scheme of a fighter with retractable landing gear, two-seat single-engine aircraft could no longer compete with single-seat ones and lost their meaning.

An original solution to the problem was proposed by engineer V.S. Vakhmistrov. The essence of the idea was that heavy bombers had to carry their "escort", which had an insufficient range due to a small supply of fuel. In the 1930s, Vakhmistrov, under the code name "Link", developed several flying aircraft carriers - fighter carriers - based on the TB-1 and TB-3. In various versions of the "composite aircraft", from two to five single-seat fighters of the I-5, I-7, I-16 type were mounted on the wings, fuselage and under them. Takeoff and flight took place with the engines of all aircraft running. At the target, the fighters uncoupled and covered the bombers. The connection with the carrier aircraft in the air was also worked out. The most successful was the "Link-6", which appeared in 1934 - TB-3 with two I-16 fighters under the wings. Work on the "Link" was carried out for seven years. It was recognized that the system was quite viable, but in 1938 the funding for the theme, which received the nickname "Vakhmistrov's Circus", was stopped.

The idea of an aircraft coupling was picked up by the engineers of the Third Reich, who created the Mistel system in 1943. Only the Germans had the opposite: the pilot of a fighter mounted on the fuselage of an unmanned bomber full of explosives carried out control in flight, uncoupling and aiming the "air torpedo" at the target. The system had a range of about 4,000 km and was designed to strike at naval bases and large industrial facilities deep behind enemy lines.

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The emergence of all-metal bombers with armored crew positions, sealed gas tanks, and little vulnerability to conventional bullets from three-line machine guns required an increase in the firepower of the hawks. Advanced Soviet military thought promptly and correctly raised the question of installing something larger and more destructive on them, preferably guns. The trouble is that the country did not have its own aircraft guns, and there was nowhere to buy them. The idea arose to arm the fighter with domestic top-secret weapons - dynamo-active (recoilless) guns by L.V. Kurchevsky, in which the recoil force was compensated by the reaction force of the gases thrown back. Theoretically, this made it possible to use guns of fairly large calibers.

The first ground firing from the reconnaissance aircraft P-1 were held in April 1930. After the fourth shot, the plane was destroyed by the impact of its own weapons. This was followed by an experiment with the P-3 reconnaissance aircraft, with a similar result. But the cannon itself led the military into

delight. It became clear that for the DRP it was necessary to build a special aircraft: metal, especially strong in the tail area or created according to a special scheme. Work on such a promising machine was carried out by several design bureaus at once.

In the summer of 1930, D.P. Grigorovich, who was listed as the unofficial technical head of the Chekist Central Design Bureau. A.N. took part in the creation of the fighter. Sedelnikov, V.L. Korvin, A.V. Nadashkevich, E.I. Mayoranov, V.D. Yarovitsky, G.E. Chupilko, S.N. Shishkin. The work was carried out in the deepest secrecy, isolated from other objects, and even the name of the project was top secret — #1".

The result was a strut-braced low-wing aircraft, in which the front part of the fuselage, together with the propeller unit, was borrowed from the I-5. Tail section, in order to avoid

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the destructive effect of gases emitted from the gun nozzle, was a failure of a duralumin monocoque with a high horizontal tail. The aircraft developed a maximum speed of 259 km / h. The armament consisted of one PV-1 machine gun and two 76-mm Kurchevsky guns suspended under the wing.

The gun had a length of 3.5 m, a rate of fire of about 20 rounds / min, and weighed 75 kg. The ammunition consisted of seven fragmentation or canister shells with a 22-second remote tube. The shots had nitro fabric cartridge cases with a wooden pallet. When firing, the fabric was supposed to burn out, but in practice it did not burn out completely, and, together with pieces of the pallet, got stuck in the barrel bore, which sometimes led to a rupture of the barrel. Other shortcomings included the small capacity of the magazine, the unsatisfactory operation of automation and, ultimately, the vicious design of the gun. Ground tests have shown that firing from the DRP produces a "severe physiological effect on the pilot" and leads to the destruction of the aircraft - the design could withstand no more than 400 shots.

Serial production of the I-L fighter began in 1933. In total, Plant No.-39 produced 72 vehicles, most of which were put out of action by Kurchevsky guns during the year of operation. In development of the Z type, Grigorovich designed the IP-1 cannon fighter with two APC-4s. 200 copies were produced, however, without miracle weapons.

AGOS TsAGI created three aircraft for dynamo-reactive guns at once.

Brigade V.N. Chernysheva in 1931 built an all-metal fighter I-12 (ANT-23) with two air-cooled engines installed in tandem. The aircraft was made according to the original two-beam scheme. Beams made of steel pipes were intended to accommodate lightweight 76 mm APK-5 guns. The refinement of the machine, which flew very mediocre, and the armament, which turned out to be prone to rupture, lasted almost three years and ended with the closure of the project.

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In May 1933, the I-14 (ANT-31) high-speed monoplane fighter, created by P.O. Suhoo. The aircraft had outstanding flight performance, with the M-25 engine it reached speeds of up to 450 km/h. It was the first to use retractable landing gear, brake wheels and an enclosed canopy. Armament - one PV-1 and two low-powered 37-mm APK-37s with a theoretical rate of fire of about 70 rounds / min and an ammunition load of 25 rounds per gun. However, the new offspring of Kurchevsky turned out to be incapable of combat: the automation constantly jammed, when tilted or heeled, the "aircraft gun" did not work at all, and at steep dive angles the shells fell out of the barrel. Nevertheless, both the cannon (!) and the aircraft were put into production. Three years later, filled with endless tests, approvals, alterations and elimination of defects, the troops received 18 I-14 fighters armed with classic ShVAK air guns.

Finally, in February 1935, the Tupolev team presented the DIP (ANT-29) twin-engine fighter, which was a 102-mm APK-8 cannon with wings and Hispano-Suiza engines. The gun barrel and exhaust pipe passed through the entire fuselage. Above them were the cockpits of the pilot and gunner. Kurchevsky promised the destruction of air targets with 8-kg shrapnel charges at a distance of 8 km with a rate of fire of 25 rounds per minute. It has not been tested in practice. The plane was not even transferred to state tests.

The resilient inventor, who headed the Department of Special Works of the People's Commissariat of Heavy Industry, was securing new funding and preparing to equip Soviet aircraft with dynamo-reactive cannons and mortars of [52 mm] caliber, which were supposed to shoot armadas of enemy bombers from a distance of 13 km! The enticing ideas of Kurchevsky were very impressed by leading comrades of the highest rank, for example, People's Commissar for Heavy Industry G.K. Ordzhonikidze, Deputy Commissar of Defense M.N. Tukhachev

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sky, head of the Air Force Ya.I. Alksnis. Therefore, Kurchevsky's "firm" was allocated new millions of rubles, and an aviation design bureau was organized at one of the artillery factories, in which designers B.I. Cheranovsky, S.A. Lavochkin, S.N. Lyushin, V.B. Shavrov (in November 1937, after the total shooting of the top command personnel of the Red Army, it was concluded that under Kurchevsky's jet fantasies "four types of aircraft were spoiled").

As already noted, two leading design organizations, TsKBI KOSOS TsAGI, were in charge of experimental aircraft building in the USSR. But besides them, there were many more "special" and "special" offices that created a variety of flying equipment.

In the summer of 1930, on the initiative of P.I. Baranov, by order of the Revolutionary Military Council at TsAGI, the Bureau of Special Designs was organized to study new issues in the field of flying and create vehicles of new and unusual designs. Then this organization repeatedly changed its title and subordination. The BOC theme included high-altitude cabins, stratospheric balloons, tailless aircraft, rocket-powered aircraft, autogyros.

Engineer V.A. was appointed head of the BOK. Chizhevsky, deputy - N.N. Chestnuts. At various times, L.I. Sutugin, S.S. Krichevsky, B.I. Cheranovsky, N.I. Kamov. Among the works of the BOC are the gondola of the stratospheric balloon "USSR-1" and a number of experimental aircraft.

In 1933, a special Special Design and Production Bureau of the Red Army Air Force was organized. Military pilot P.I. became his boss. Grokhovsky, who had an education of four classes, gained fame in aviation circles and the patronage of Tukhachevsky and Alksnis with experiments in the field of creating parachute landing equipment. The military, who constantly cared about filling the "deep operation theory" with real content, were keenly interested in the possibility of mass airborne landings behind enemy lines.

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goods and heavy military equipment. Grokhovsky developed parachutes, cargo platforms, parachute containers, containers for people and containers for saboteur dogs. One of his ideas was overturning "cradles" suspended on bomb racks, from which a group of paratroopers fell out at once. In another version, the same test subjects were put into a large KPS-17 container, nicknamed "buffet", attached to the belly of the TB-1 aircraft and dropped with one cargo parachute on all.

In the autumn of 1934, Divisional Commander Grokhovsky headed the GUAP Experimental Institute for the Works of the Red Army with a branch in Leningrad and decided to work on aircraft at the same time. Pavel Ignatievich himself had no experience in designing aviation equipment, so he used the services of Leningrad engineers and calculators, "usually he set the aircraft layout, and other designers were developing it" - B.D. Uralpov, V.F. Rentel, V.N. Belyaev, V.F. Bolkhovitinov, S.G.

Kozlov, P.A. Ivensen, and in his spare time from his main job. So, Professor S.G. Kozlov, carried out not only Grokhovsky's orders, but also drew his "Giant", and built an invisible plane with Plexiglas skin. Leading specialist in aircraft strength Prof. V.N. Belyaev worked for almost all design bureaus that existed at that time, and besides, he designed his own machines.

Among the projects implemented by the Experimental Institute over the three years of its existence, one can name the G-61 - cassettes for transporting people under the lower wings of the R-5 aircraft (the cassettes were double plywood boxes that could accommodate 14 people lying down).), a two-beam twin-engine "Universal Flying Wing" G-37, designed to carry airborne assault and various cargoes in a cabin suspended under the fuselage, a transport motor glider G-3] "Yakov Alksnis", an inflatable landing glider and tailless -ram G-39, nicknamed "Kukaracha". True, cassettes-"rabbits" did not receive distribution due to

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the fact that after the first ejection, even the most hardened fighters tied up with parachuting; the "flying wing" really flew, but it remained in a single copy; the motor glider evoked among the military associations with a mass grave - 18 saboteurs were placed inside the wing without the possibility of leaving it until the moment of landing; the prototype of a single-seat inflatable glider "buyers" looked with interest, but to finance further work refused.

As for the Kukarachi, it could not even get off the ground, although V.P. himself got behind the wheel. Chkalov. Not smart. The head of the institute, overflowing with ideas, "set the scheme" for an interceptor aircraft in the form of a flying wing "sharpened" in front, which was supposed to cut the tails of enemy vehicles. The task of the "other designers" who led the development was complicated by the requirement to provide the Cucarache with the possibility of vertical take-off and landing. As a result - no takeoff, no landing.

The idea looks just as exotic, reminiscent of illustrations for the novels by J. Verne (fiction in handicraft), but embodied in metal and tested in the air in 1935, with the installation of thick TB-3 batteries in the forward fuselage and consoles of the wings of three three-inch guns without wheels, which were served by loaders who fired a volley at the command of the ship's commander. It is not clear what they expected to hit, but initially it was supposed to scatter enemy air squadrons with special shrapnel (the idea of installing large-caliber guns in an aircraft thirty years later was implemented by the Americans, however, for firing at ground targets in the absence of air defense).

Since 1935, two machines were built at the Experimental Institute at once: the ultra-fast fighter-interceptor G-26 with a declared speed of over 600 km/h, and the wooden "light cruiser" G-38, armed with two cannons and six machine guns (judging by description - bomber version of the G-37 with retractable landing gear). There were also projects of a glider-tankonos in development.

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glider and tank of a gliding, parachute-dropped single-seat foot-powered submarine and an aircraft carrier submarine, armored parachuting snowmobiles and an armored motorcycle, torpedo bombs and a helicopter torpedo (!). Yes, there was also a flywheel, a jet airship, a stratoglider suspended from a balloon, and, finally, a "landing train": "Eight gliders even larger than the G-31 gliders, each for 50 people, are attached to a powerful four-engine aircraft. Thus, one aircraft immediately deploys more than 400

paratroopers."

In October 1932, the Air Force received a 7.62-mm ShKAS aviation machine gun designed by B.G. Shpitalny and I.A. Komaritsky. Rather, as was customary in the Soviet

country, a promising machine gun that jammed after a minute of firing was put into service, and then brought to perfection for two years; in fact, he began to enter the troops from 1934. The action of the machine gun was based on the use of the energy of the powder gas discharged from the barrel. The power supply was carried out with the help of a metal link detachable tape. A very high technical rate of fire - 1800 rounds / min - was achieved due to the short stroke of the moving parts of the automation and the combination of a number of loading operations. The machine gun weighed 10.6 kg. Since he "chewed" ordinary cartridges from a three-ruler, special cartridges of a hardened design were worked out, which had tracer, incendiary and armor-piercing incendiary bullets. ShKAS was produced from 1933 to 1945 in wing, turret and synchronized versions in tens of thousands of copies and was installed on almost all types of Soviet aircraft.

The history is amazing. For example, how did a young specialist born in 1902, who graduated in absentia from the Moscow Mechanical Institute in 1927, in 1930 be able to submit for testing

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a special model of machine-gun armament" with a record rate of fire, which, according to Shpitalny, Hitler himself looked at in the evenings and cried? I can believe that, as they say in the canonical biography, FROM YOUTH, Boris "set out to make a rapid-fire machine gun", it is clear that, according to the memoirs of Komaritsky, a unique system could appear only in the USSR AND ONLY "thanks to the care of the Communist Party and the Soviet government, who have always paid exceptional attention to our work. This is just beyond doubt: without "exceptional attention", who would allow them. In addition to the professional gunsmith I.A. Komaritsky, with the help of which "the scheme of the machine gun was developed," specialists from the design bureau of the Tula Arms Plant I.A. also had a hand in ShKAS. Pastukhov, P.K. Morozenko, A.A. Tronenko, M.A. Mamontov, G.I. Nikitin, K.N. Rudnev, I.P. Somov, I.V. Savin, A.K. Norov, S.A. Yartsev, N.F. Tokarev.

Personally, based on the combination of coincidences and "blank spots", I got the impression that B.G. Shpitalny completed the design of the rapid-firing aircraft machine gun F.V. Tokarev with the removal of powder gases and a short stroke of moving parts, which was made by order of the Artillery Directorate and in October 1930 was presented for field tests, which did not pass due to the insufficient rate of fire and the complexity of production.

One can argue about the application for the "first in the world". Back in 1929, the Japanese launched the production of the "purely aviation system" Type 89 (a deep modification of the Vickers), the French had their own Darn machine gun with a rate of fire of 1200 rounds per minute. The German 7-92-mm MO15 of the 1932 model with a rate of fire of 1000 rounds / min was also a "purely aviation system", moreover, fully developed. And the MC81, put into service in 1938, fired 1600 rounds per minute - a little less than our miracle weapon, but still not so much that

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Hitler was jealous; but the German one weighed 6.5 kg and was very compact, which is important for aircraft designers.

The Tula gunsmiths did not stop there, and by 1933 they had completed successful tests of the 12.7-mm aircraft machine gun of the Shpitalny-Vladimirov system, which pierced armor 20 mm thick from a distance of 300 m. ShVAK (cartridges from DK and DShK army machine guns were used) was excellent, the high-explosive effect of its explosive bullets was insufficient. Therefore, in 1935-1936, on the basis of the machine gun, a 20-mm ShVAK aircraft gun of a similar design was created (by simply increasing the caliber by replacing the barrel without changing the dimensions of the mobile system) with a rate of fire of 700-800 rounds / min. Moreover, among the leadership of the Air Force and "specialists in combat use" the debate continued for quite a long time

topic: did you need an aircraft gun at all? At the time of M.N. Tukhachevsky was all in favor of recoilless guns, later, given the increase in speeds and the lower rate of fire than that of a machine gun, they began to doubt the possibility of hitting an enemy aircraft with a projectile.

However, in the future, the ShVAK gun was widely used in Soviet aviation and was installed on many types of aircraft.

Under this gun in 1933-1936, the team of N.N. Polikarpova worked on the creation of a promising fighter with a speed of 500 km/h. The existing star-shaped air-cooled engines, due to the large frontal resistance, could not ensure the achievement of such a speed. There were no domestic in-line engines of suitable power, altitude and dimensions. In 1935 N.N. Polikarpov brought the I-17 fighter for testing based on the 750-horse French Hispano-Suiza U-12 engine with a ShVAK motor gun installed in the collapse of the cylinder block and four wing machine guns. The cross sections of the cab and engine on the "seventeenth" were almost the same,

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only the cockpit canopy slightly rose above the fuselage. The machine, which had a tail of normal length and normal centering, turned out to be much more stable than the I-16. And although the cockpit remained open to all winds, the "sharp-nosed" fighter at an altitude of 4400 m demonstrated a speed of 485 km/h. It did not go into series production - it was "shot down" in an unequal battle with the Soviet aviation bureaucracy, which for five years stubbornly ignored the aircraft, and then demanded a combat vehicle capable of squeezing at least 600 km/h.

To create such a combat vehicle, a motor with a power of at least 1000 hp was required. And such a motor - a double-row star "Gnome-Ron" -14K - the French imperialists sold to Comrade Stalin. At the plant number-29 under the leadership of A.S. Nazarov, the engine was produced from the end of 1935 under the brand name M-85. The first engines had a lot of imported French and English parts; in terms of power and altitude, after "adaptation", it corresponded to the prototype, although it was inferior to it in terms of resource and had a higher fuel consumption.

Polikarpov abandoned the I-17 and started designing a more promising machine.

Following the Soviet Union, high-speed fighters appeared in Germany, Italy, France and Great Britain.

In 1935, Willy Messerschmitt, who had previously tested his ideas on sports aircraft, brought to the test a prototype of the most mass-produced German fighter BE-109. The first modifications were equipped with a Lito-2100 engine with a power of 635 hp, developed a speed of up to 470 km/h and were armed with two 7.92 mm MO-17 synchronous machine guns.

Despite a somewhat angular appearance, the aircraft was distinguished by good aerodynamics, a high degree of forethought of the scheme, high manufacturability,

excellent flight data - "month

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ser" was stable in all flight modes and could fly with the handle thrown. The comfortable cabin had a resettable canopy, which allowed the pilot to quickly leave the aircraft in an emergency.

The Breda Ba-65 aircraft with a flight speed of 428 km/h became Italian high-speed fighters. In France, in 1935-1936, two firms immediately began testing fighters: Moran-Saulnier, who created the M\$-406 aircraft at a speed of 490 km/h, armed with a 20-mm Hispano-Suiza motor-cannon (rate of fire 650 rds/min, 60 rounds of ammunition in the magazine) and two 7.5 mm wing machine guns, and M. Blok - "Blok" MV-151S, which developed a speed of up to 520 km/h and was armed with two 20 mm cannons and two machine guns. Two

high-speed fighters appeared at this time in England: Hawker "Hurricane" Mk. | designer Sydney Kampp at a speed of 518 km / h and the brainchild of Reginald Mitchell Supermarine Spitfire Mk. | at a speed of 560 km / h - both aircraft were equipped with a 12-cylinder Merlin liquid-cooled engine from Rolls-Royce with an HP 990 power. and carried in the wings eight 7.7 mm Vickers K machine guns (licensed by the American Browning).

Serial production of the above foreign machines was deployed in 1937-1938 years.

Successes in the creation of high-speed monoplanes forced designers to turn to the construction of multi-seat monoplane fighters and high-speed monoplane bombers. The complex of tactical and technical requirements presented by the leadership of the Soviet Air Force set the task of creating a new type of combat aircraft - a high-speed short-range bomber capable of conducting combat operations in cooperation with ground and naval forces, striking at targets in the operational-tactical rear of the enemy. The characteristics were set: maximum speed up to 400 km / h, according to

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cage - up to 110 km / h; relatively short range - up to 700 km and bomb load up to 500 kg

In February 1934, relying on the design of the experimental multi-seat MI-3 fighter, A.A. Arkhangelsky under the direction of A.N. Tupoleva started designing the ANT-40 bomber carrier, which was a three-seat cantilever mid-wing aircraft with two engines and landing gear retractable in flight. The smooth metal skin of the entire airframe of the aircraft, the absence of protruding parts, the well-chosen junction of the wing with the fuselage - all contributed to obtaining high aerodynamic qualities of the new machine. The front nose was made transparent with a vertical slot for the movement of machine guns. The aircraft was designed for Wright-Cyclone star-shaped engines, but then preference was given to Hispano-Suiza 12\U in-line engines - in the domestic version, which received the M-100 index - with a capacity of 750 hp. The first copy passed state tests in July 1935, in 1936 mass construction was already launched, which continued at factories No. 22 and No. 125 until 1941].

The serial SB-2 bomber with M-100A engines (860 hp due to some increase in boost) developed a speed of 420 km/h at an altitude of 4000 m, had a service ceiling of 9000 m, and a range of up to 2150 km. Bollyaya speed for the time being made him a little vulnerable to the fighters of a potential enemy. Armament: four ShKAS machine guns, two 250 kg bombs or six 100 kg bombs in a bomb bay. Half of the barrels protected the front hemisphere, and the nose twin had very small firing angles along the horizon. The upper ShKAS, from which, covering the aircraft from behind and above, the gunners fired, was equipped with an unshielded Tur-9 turret, so that the gunner had to protrude into the air stream together with the machine gun. The lower ShKAS was mounted in a pivot hatch mount LU, which also had limited firing angles and

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dawn. And most importantly, the same shooter had to serve her. However, these shortcomings, like the tightness of the front cockpit and limited visibility, were perceived as an inevitable, but not too big evil. After all, it was assumed that the gunner-radio operator would not have to shoot at all, but only to "handle" the hopelessly lagging behind enemy fighters.

On the SB-2 bis modification of 1937 with M-103 engines (960 hp), sealing of cracks, polishing of wing tips and plumage were introduced for the first time, the aerodynamics of engine nacelles were improved, and a rear shielded turret was installed. The speed reached 450 km / h at an altitude of 4100 m.

SB produced 6830 copies.

The secret of A.N. Tupolev, as the chief designer, was that, in addition to undoubted talent, organizational skills and penetrating power, Andrey Nikolayevich did not break away from the realities of the country in which he lived, and, unlike Bartini, Grokhovsky or Myasishchev, did not fond of engineering fantasies. So, recalling Myasishchev, Kerber writes: "I undertake," he said, "to complete any task and I will complete it if industry gives me the necessary components, that is, engines, equipment and metal. But the industry did not submit them, and Myasishchev's experimental design bureaus were liquidated ...

The philosophical concept of the patriarch of the Soviet aviation thought A.N. Tupolev was extremely clear:

"The country needs planes like black bread. You can offer pralines, cakes, pastries, but there is no need, there are no ingredients from which they are made. Hence:

a) it is necessary to develop a doctrine for the use of aviation, based on real projects possible cars;

6) on the basis of already mastered technology and production capabilities to create machines suitable for large-scale production;

c) if these samples, according to their data, lag behind Western advertising a little - to hell with them, we'll take them in quantity...".

Simultaneously with the creation of the "high-speed bomber", work was carried out on the "long-range" bomber. In this direction, since the end of 1931, the brigade of O.P. Sukhoi in the Tupolev team and design team No. 3 at the Central Design Bureau, led by S.V. Ilyusha NIM.

The Tupolev team, on the instructions of the government, built the ANT-25 aircraft with a flight range of 13,000 km, which was tested in the air on June 22, 1934. It was an all-metal cantilever monoplane with a large wing aspect ratio and one M-34 engine. Struggling for aerodynamic cleanliness (in tests, the aircraft did not show the estimated speed and range), the designers pulled linen over the corrugated skin, covered it with dope and polished it. The car was named RD - distance record. Records for the glory of the Land of the Soviets were set. In particular, it was on the taxiway that the crew of Valery Chkalov flew to America via the North Pole. But this rather slow-moving machine did not turn out to be a bomber, although under the DB-1 brand it was even put into mass production - for a very short time. In the army, they were kept as long-range scouts. In military service, a single-engine long-range aircraft had no prospects. The long-range bomber had to have at least two engines and be able to fly in case of failure.

one of them.

In 1935, the Sukhoi brigade created the DB-2 aircraft with two M-85 engines with a power of 800 hp each, which, with a bomb load of 1000 kg, provided a flight range of 5000 km. However, by this time, a faster, albeit slightly less distant, twin-engine bomber TsKB-26 had appeared, released for flight tests by the team of S.V. Ilyushin. It outperformed its competitor in maneuverability, rate of climb, and very significantly in terms of maximum bomb load.

The Chief Designer liked the car, because the tests had not yet been completed, and the aircraft > August 1936 had already been put into service. Option

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TsKB-30 was accepted for serial construction under the designation DB-36.

The flight range of the DB-3 reached 4000 km with a bomb load of 500 kg at a speed of 320 km/h at an altitude of 4600 m. The maximum speed was 390 km/h, the ceiling was 8400 m.

elongation of the wing with a higher load on the wing (120 kg/sq. m). The take-off weight was 6965 kg. The small arms armament was weaker than on the SB - three ShKAS machine guns: the nose mount was not twin (besides, it was impossible to shoot at high speeds from it: the oncoming air flow rushing into the open flap of the screen literally blew the navigator off seats). The crew consisted of three people, and the gunner-radio operator still served two machine guns - upper and lower. The pilot's seat had a 9 mm armored back. Bomb load - in several versions - from 1000 to 2500 kg. Bombs were placed in the fuselage and external suspension on seven beam bomb racks.

The first DB-3 Soviet Air Force received in May 1937. Due to the high labor intensity and complexity of the design, mass production at factories No. 39, 18 (Voronezh) and 126 (Komsomolsk-on-Amur) was established only in 1938. The machine was constantly refined and improved: more powerful versions of the "gnome" were introduced - M-86 and M-87, propellers with adjustable pitch of the VISH-3 brand (license from Hamilton) were installed, the design of bomb racks was changed, and electrical equipment was improved. DB-3 formed the basis of Soviet long-range aviation, and was also produced in the version of a torpedo bomber.

German bombers Ro-17 and He-111 can be considered foreign analogues of the "high-speed" SB and "long-range" DB-3.

Flight tests of the postal-passenger Dornier, on the basis of which the Oo-17 all-metal bomber was made as part of the assignment of the technical council of the imperial Ministry of Aviation, began in the autumn of 1934. The concept of the "schnelbomber" was similar:

the minimum weight of the bomb load and high speed, allowing you to avoid meeting with enemy fighters. The prototype "flying pencil" with an extremely compressed fuselage, spaced tail and two in-line VMU UG engines reached a speed of 435 km / h. The first aircraft began to arrive at the units at the beginning of 1937.

The serial three-seater Ro-17E, burdened with a military load and shooting points, developed a speed of 354 km/h. Small arms were limited to two MO 15 machine guns, and a 500-kg bomb load was placed in two compartments.

Engineers brothers Siegfried and Walter Ponter began to create an aircraft with a longer flight range and more powerful weapons based on the passenger Heinkel-70 at the end of 1933. From its predecessor, it adopted perfect aerodynamics, an elliptical wing, retractable landing gear, and an all-metal construction. A 7.92-mm machine gun and a navigator's workplace were located in the glazed nose, the same MC15 machine guns with a rate of fire of 1100 rounds / min were installed in the upper middle part of the fuselage and the retractable arbor of the lower gunner. The "payload" was fired in eight vertical cassettes, each of which contained one bomb with a caliber of up to 250 kg and had its own bomb bay. From the cockpit there was a passage between the cassettes to the rear of the fuselage, where the radio equipment and gunner's posts were located.

Serial Non-111V, which appeared at the beginning of 1937, with two Daimler-Benz OV-600 engines with a power of 1000 hp. and with a takeoff weight of 8600 kg, it developed a maximum speed of 370 km/h, cruising - 340 km/h. Service ceiling - 7000 m, flight range - 1660 km.

Similar machines in 1936 appeared in the United States - "Douglas" B-18, in France - "Block-131" and "Amio-350", Italy - 5M.79 "Sparviero".

A distinctive feature of the Italian bomber was the presence of three radial engines

"Alfa Romeo" with a capacity of 780 hp. The vehicle developed a maximum speed of 430 km/h, had a range of 200 km, a ceiling of 7,000 m, carried 1,250 kg of bombs, and had fairly powerful armament: three

large-caliber 12.7 mm Breda machine guns to protect the front and rear hemispheres and two 7.7 mm machine guns in the side windows. The pilots' seats were protected by a 9.5 mm armored back. Crew - five people.

A common shortcoming of all "high-speed" AND "long-range" bombers was a small bomb load and weak defensive armament, which were sacrificed for the illusory benefits of high speed and record range.

Along with the construction of high-speed medium bombers, Soviet designers were given the task of creating a high-altitude heavy bomber capable of delivering strikes against targets deep in the rear of the enemy. According to the terms of reference issued by the Air Force Research Institute to the team of A.N. Tupolev in the summer of 1934, the aircraft had to have a range of at least 1,200 km, a speed of 400 km/h, a ceiling of 12,000 m, and a payload of 2,000 kg—that is, to be practically inaccessible to enemy fighters and anti-aircraft guns. The design of the unique was entrusted to the team of V.M. Petlyakova. His scheme continued the TB-3 line - an all-metal four-engine mid-wing, but with a smooth skin, improved aerodynamics, increased to 170 kg/sq. m wing load and retractable landing gear. In general, the whole design was transitional to higher-level aircraft-building technologies. Since there were no suitable high-altitude engines in the country (and there was nowhere to buy - advanced Soviet military thought overtook foreign thought), they found a rather original solution - to four AM-34 FRN liquid-cooled propeller-driven motors (930/1200 hp). c.) add one more - exclusively for the rotation of the centrifugal supercharger, which provided the boost and altitude of the four "main" engines.

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At the end of 1936, tests began on a prototype ANT-42 (TB-7) with a flight weight of 24 tons. The use of the ACN-2 central pressurization unit with the M-100 engine, hidden in the upper part of the fuselage, made it possible to obtain a flight speed of 403 km/h at altitudes of 8000–9000 m and reach a ceiling of 10,800 m (the military urged the use of individual pressurization on each engine, but no one managed to create a reliable turbocharger in fifteen years. The Americans were able to solve this problem during the construction of their "flying fortress", and we stole their design and copied it head to head, obtaining the domestic TK-19. True, this happened after the war). The aircraft and the engine were finalized for another two years and were put into service at the same time.

_ In Germany, there were also attempts to introduce something air-strategic like the Dornier-19 of the 1936 model, but there were not enough funds, resources and time. As G. Goering admitted: "The Fuhrer does not ask me what type of bombers I have. He wants to know how many there are."

Simultaneously with land-based heavy aircraft, heavy flying boats were built for the Soviet Navy. Initially, they tried to master the production of giant seaplanes on the basis of the TB-3 monoplane. The first was a two-boat all-metal seaplane with six M-34R engines in three tandem installations on the center section - the "sea cruiser" MK-1 (ANT-22). The prototype was ready by August 1934. The take-off weight of the MK-1 was 43,000 kg with a bomb load of 6,000 kg, armament was represented by two Oerlikon cannons and eight machine guns in six shielded turrets. "Catamaran" swam perfectly, but it didn't fly well. It turned out to be low-speed — maximum speed 233 km/h, with bombs on external sling 205 km/h — and was not accepted for mass production.

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The second naval aircraft of the TsAGI KOSOS brigade, MDR-4 (ANT-27), was also unsuccessful. In March 1934, its factory tests began. In April, there was a catastrophe in which the head of the work on naval aviation, I.I. Pogossky. The understudy of the aircraft, which received

designation MTB-1 (naval torpedo bomber), was built by autumn. With a takeoff weight of 14,250 kg with three engines of 825 hp each. the aircraft near the ground had a speed of 233 km/h (without a bomb load), and a ceiling of 5450 m. Since the navy was in dire need of seaplanes, it was decided to put the car into series before the end of state tests. As a result, one after another, two more aircraft crashed. Having handed over 15 vehicles, the plant suspended the series, moreover, at that time a completely modern four-engine flying boat ANT-44 appeared, which received the designation MBT-2. The first flight took place on April 19, 1937, but this model did not go into production either.

In short, until 1939, Soviet naval aviation did not receive a single type of seaplane that met the tactical requirements of the customer, with the exception of the single-engine short-range reconnaissance aircraft MBR-2, created by G.M. Beriev back in 1937.

In addition to Moscow and Leningrad, a unique aircraft building school arose in Kharkov, where they built not only "high-speed tractors" and "steam locomotives" with anti-shell armor, but also created aircraft. In 1932, the talented engineer I.G. Neman headed the Department of Aircraft Engineering of the Kharkov Aviation Institute. Iosif Grigorievich radically changed the traditional educational process, striving to combine learning with design practice. Under his leadership, teachers and students of the institute built several KhAI brand vehicles, including a serial two-seat reconnaissance aircraft and a short-range bomber R-10 (KhAI-5). All-wood monoplane with retractable undercarriage, put into service in 1936, with

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The M-25 engine developed a maximum speed of 380 km/h, had a flight range of 1450 km, a ceiling of 7700 m, was armed with three ShKAS machine guns and could carry 300 kg of bombs inside the fuselage. For the first time in domestic aviation, remote control of hatches in the bomb bay was used. The pilots noted that the R-10 had high speed, ease of control, and stability in flight. The car turned out to be maneuverable and willingly performed all the aerobatics.

"I personally made three flights on the R-10 aircraft designed by the engineer Neman," reported Air Force Chief Ya.I. Alksnis - the aircraft is exceptionally light and easy to fly, quite accessible to pilots of medium and even low qualifications. The performance of the aircraft is relatively high... The aircraft is stable during landing and has no tendency to turn either during the takeoff run or during the run after landing. The aircraft has passed the spin test and recovers from it simply and well, without difficulty... The aircraft, in terms of its combat properties and flight and tactical data, deserves to be produced in large quantities for the armament of our troops and reconnaissance aircraft and in every possible way speed up its production. The aircraft is of wooden construction, and therefore its production is possible not only at the SUAI factories, but also at the factories of agricultural machines. I consider it necessary ... to invite the NKOP to present their views on speeding up the production of the aircraft and expanding the production base by introducing it at one or two agricultural machinery plants in parallel with production at plant No. 135.

Until 1940, 528 scouts were produced at the Saratov combine harvester plant.

Introducing the R-10, the Air Force leadership considered it as a transitional model to a more advanced machine. At the beginning of 1936, a competition was announced for the best two-seat reconnaissance monoplane and short-range bomber under the conditional motto "Ivanov". The aircraft is designed

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It was intended to replace obsolete reconnaissance biplanes R-5. The design bureaus of N.N. Polikarpova, P.O. Sukhoi, D.P. Grigorovich, I.G. Neman, S.V. Ilyushin. At the end of the year, having reviewed the submitted projects, the People's Commissariat issued an order to three applicants. "Stalin's task" for a multi-purpose, mass-produced, easy-to-produce and operate

The aircraft provided that Sukhoi's aircraft would be all-metal, Polikarpov's - of mixed design, Neman - all-wood. For all projects, a number of units had to be exactly the same and interchangeable: chassis, armament, power plant (all with the M-62 engine).

During the years of the second five-year plan, the USSR continued to increase the capacity of the aviation industry. In 1937, there were already 57 aircraft factories in the country, which employed 249.1 thousand workers and employees. So, on the outskirts of Novosibirsk, plant No. 153 began to function, which, with reaching full capacity, was supposed to produce 1500 fighters and 1200 bombers per year (In reality, as usual, everything turned out to be more complicated than the builders of the new life planned. Overcoming the specifics climate, remoteness from supply bases, undersupply of equipment and components, shortage of specialists – there were only seven aviation engineers available – the plant, named after V.P. Chkalov, built 396 I-16 fighters in 1937-1940 and 503 double training UTI-4. The unheated and non-electric bulk of the bomber building with an area of almost 30 thousand square meters at the beginning of 1941 continued to gape with unglazed windows, despite the efforts of the leadership of Stroytrest No. 7 and Siblag, and the People's Commissariat did not decide on the question of what kind of bomber to produce. The enterprise remained the stepson of the aviation industry until the war broke out and the evacuation of factories to the east).

The largest research institutes of aircraft building TsAGI and CIAM have reached the world level

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vein of the development of aircraft designs of various types. The scientific and technical thought of Soviet designers did not lag behind foreign achievements. However, the level of implemented developments was still significantly affected by problems with the organization of production, delays in the implementation of efficient technological processes, and the lack of a well-functioning quality control system. The elimination of these shortcomings was facilitated by the study and application of advanced foreign experience.

Head of the UMTS of the Red Army I.P. Belov, in his report to the Defense Commission of the Council of People's Commissars of the USSR "On the state of the US aviation industry" dated September 13, 1936, drew attention to the fact that American aircraft factories are switching to methods of organizing mass mass production:

"Freed from labor-intensive machine-tool and mechanical work, Americans widely use stamping of various sheet metal parts, press riveters for assembly, various welding methods, anodize aluminum parts.

alloys, greatly increasing their durability ...

The organization of production, the technological process and mechanization at Soviet aircraft factories (the most powerful in the world!) lag far behind modern advanced aircraft technology. As a result of this, there is now a dangerous gap between the ability to design an airplane well and to produce it very poorly and for a long time.

In the same year, a decree was issued on attaching chief designers to mass production, who were supposed to deal directly with the problem of a "dangerous gap". In this regard, most of the teams of the Central Design Bureau and TsAGI were transformed into design bureaus and transferred to various aircraft manufacturing plants. In the USSR, it was possible to do something where and when, where and when "the party orders." Engineers who had already gone through the school of increasing the efficiency of their work through "militaryization" were disciplined packing suitcases.

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So, the team of S.A. Kocherigina went to the Moscow plant number-1, the team of G.M. Beriev - to the Taganrog plant number-31 - to make flying boats. Brigade N.N. Polikarpova was divided: part moved to Khimki to plant No. 84, and part moved to Gorky to plant No. 21, which was the main supplier of the I-16 fighter.

Several young, not yet beaten engineers, took the opportunity to turn to M.M. Kaganovich "for clarification on the issue of moving to Gorky:" He answered in a raised tone: "Here we will put you on a barge and lower you down the Volga. What to talk about it? There is a solution..."

If the party says: "We must!" — run ahead of your own screech.

In 1933-1938, as in all others, the tendency to acquire samples of aviation equipment and technologies in Western countries continued. Due to the fact that cooperation with Germany was temporarily curtailed, the Soviet Union purchased the latest aircraft, engines, all kinds of equipment, as well as licenses and technical assistance in the USA, England and France. In one of the letters addressed to Stalin, K.E. Voroshilov wrote: "The USA is now the country with the most advanced aviation technology in the world, both in the field of design and in the field of aviation operation."

In April 1936, a resolution of the Council of Labor and Defense "On the purchase of licenses and technical assistance for American and British aircraft" was adopted. In the same month, a commission consisting of Kharlamov, Zverev, Rogov, Belenkevich, Myasishchev, Gurevich, Sukhoi - about 30 people in total - was sent to England and the United States with the task of studying American aircraft and negotiating with representatives of firms on the acquisition obtaining licenses and obtaining technical assistance for the Boeing four-engine bomber, the Consolidated twin-engine naval reconnaissance aircraft, the Glen Martin four-engine naval bomber, and the Volty attack aircraft

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B-11, Seversky X-BT fighter, Douglas OS-3 twin-engine passenger aircraft.

In March 1937, a STO resolution "On the implementation of technical assistance for American licensed aircraft" was issued. In accordance with this document, the People's Commissariat of the Defense Industry was allocated 15.2 million US dollars to organize the serial construction of the Volty U/U-11, Glen Martin-156, Douglas, Consolidated ", "Seversky".

American aircraft have left a noticeable mark in the domestic aircraft industry. Thus, the Consolidated twin-engine reconnaissance aircraft, for which \$2.2 million was allocated for the purchase and implementation of technical assistance, was produced at Plant No. at plant number-1, transport "Douglas" under the brand name PS-84 at plant number-84. It was on these machines that the plazno template production method was mastered. In the aircraft industry, methods of hot stamping, casting, cold pressing, and other types of procurement operations have been applied, which increase the accuracy and cleanliness of part processing.

"The significance of the Volty aircraft for us," writes V.B. Shavrov, "consisted in familiarization with a new type of design and new technology. Experience was gained in the plaza-template method of production, which we started in the first half of 1937.

The latest aviation equipment was also purchased in America. Thus, in the spring of 1938, the STO decided to purchase 300 of the latest radio compasses, which were installed on Soviet R-| scouts, SB, DB-3, TB-7 bombers, and Volty attack aircraft.

In the same years, the USSR purchased some types of French aircraft and engines, the production of which was subsequently established at Soviet factories, as well as individual samples of the latest

aviation weapons and equipment. On December 27, 1936, a resolution was issued by the STO "On the organization of production of the French aircraft Renault

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Caudron". To implement the agreement in the spring of 1937, a commission of 28 people was sent to France, mainly specialists from the leading aircraft factories, the All-Union Research Institute of Aviation Materials (VIAM) and the "furniture factory" in Khimki. According to an additional decision of the STO, adopted in February 1937, the construction of the French aircraft was entrusted to plant No. 23 in Leningrad, the head series was entrusted with the production of the Moscow plant No. 115, and the entire series - to the "furniture" factory.

In 1936-1937, the Soviet Union purchased radio compasses, photographic equipment and individual samples of aviation weapons from the French firms Carpentier, Materiel Telephonik, Epikmen Aerodrom and some others. The same order also included the latest instruments from individual British and German firms. With Germany, despite the ideological differences, it was possible to find a common language. In 1937, various equipment was purchased - catapults, altimeters, equipment and property for the mechanization of airfield services.

Serious changes in aircraft construction began to occur during the war in Spain. Taking into account the combat experience, the German designers carried out a radical modernization of the entire aircraft fleet.

In the spring of 1937, the Arado firm proposed a new modification of the Ag-68 fighter, but the German Air Force headquarters finally decided that the days of biplanes were over and relied on the Messerschmitt, which promised to become a formidable combat vehicle.

Willie didn't disappoint.

At the beginning of 1939, the B+E-109E-1 modification with a 12-cylinder in-line Daimler-Benz OV-601A engine, which developed a take-off power of 1175 hp, went into mass production. (one of the distinguishing features of this engine was the system of direct fuel injection into the cylinders, used instead of the traditional

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carburetors), and a takeoff weight of 2500 kg. The maximum speed of the Emil was 570 km/h at an altitude of 4000 m (however, the Soviet testers from the Air Force Research Institute managed only 547 km/h, but the fact is that this research institute was famous for that - the ability to display the necessary numbers in the right time for the right people, his measurements had nothing to do with science), the flight range was 660 km, the ceiling was 10,500 m, the rate of climb increased significantly. Such indicators put an end to the idea of the invulnerability of "high-speed" and "high-altitude" bombers for fighter aircraft. The armament was also reinforced: the wing machine guns were replaced by two 20 mm Oerlikon MO-EE cannons with a rate of fire of 520 rounds/min. and an ammunition load of 60 rounds per barrel, and two MC 17 machine guns and 2000 rounds of ammunition were located above the motor.

At the same time, W. Messerschmitt created his own version of the "air cruiser" - the BE-110 strategic fighter, designed to escort bombers deep in enemy territory, carry out long-range patrols, and strike at ground targets. The task was difficult: the strategic fighter had to be on par with enemy interceptors in terms of firepower and flight characteristics, but at the same time carry a fuel supply that would provide a flight range comparable to that of a bomber. As a result of creative searches, the designers of all countries loomed rather heavy twin-engine monoplane with obviously reduced maneuverability.

The prototype aircraft took to the air in May 1936 and already at the beginning of the tests exceeded the speed of 500 km / h. Serial production was launched in the spring of 1938. Triple fighter

B-110V, weighing 5300 kg with full armament and Lito-210 engines, developed at a maximum of 453 km / h. The range was 1700 km, the ceiling was 8000 m. A whole battery was installed in the forward fuselage: four MS 17 machine guns in the upper part and two 20-mm cannons at the bottom. Another machine gun on a mobile turret covered the rear upper hemisphere.

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With the Daimler-Benz OV-601 engines installed in 1939, the aircraft squeezed 485 km / h and climbed 10,000 m, the flight range reached 1,100 km. Of course, the "one hundred and tenth" still lacked maneuverability, but it was the best in its class.

During this period, the He-111 bomber underwent significant design changes. The appearance of the aircraft has changed. The places of the pilot and navigator were connected in the forward glazed cockpit. The arrow from the rear hemisphere was protected by an 8-mm armored partition. Instead of a retractable lower gazebo, a streamlined gondola appeared, in which the lower shooter lay. The number and caliber of machine gun barrels have grown. The bomb load remained the same - up to 2000 kg. The wing of the aircraft, in order to simplify its production, instead of elliptical in plan, acquired straight forms. With the Lp10o-211A engine, the bomber developed a maximum speed of 418 km/h, had a flight range of 1,500 km, and a service ceiling of 8,000 m.

In 1938, the production of the Do-17M bomber began with new engines — radial Vgato 323, thanks to which the speed increased to 435 km/h — and a third machine gun in the cabin floor. The bomb load was doubled and usually consisted of twenty 50-kg bombs.

The events in Spain showed the increased role of aviation in direct support of ground forces. However, the increased flight speed of horizontal bombers also had negative consequences: the dispersion of bombs increased, the effectiveness of bombing decreased, despite the appearance of special sights. As E. Heinkel wrote: "While in artillery they achieved a certain accuracy of the shot, then in aviation the dropping of bombs was somewhat reminiscent of shooting from a machine gun. It is hardly worth proving to anyone that a bomb is an expensive thing. There is a need to have a battlefield aircraft. And the Germans had it. As a matter of fact, the first

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in the world, an armored attack aircraft designed to attack ground targets was created by the same Junkers at the end of the First World War. And the progenitor of dive bombers is the American biplane Curtiss H-81 Hawk.

In November 1933, the famous German ace Ernst Udet privately (at the expense of the Air Ministry) purchased two Curtiss dive bombers from the USA and demonstrated them to Goering. In February 1934, the technical department of the Ministry of Aviation issued conditions for the development of a single-seat aircraft that could be used as a fighter and as a dive bomber. The competition was won by a young company, Henschel, which had previously been engaged in the production of steam locomotives and trucks. The aircraft, designated H-123, was an all-metal single-column polutoraplan, with non-retractable landing gear, an open cockpit, equipped with a VMU 1320 star-shaped air-cooled engine (licensed version of the American Pratt Whitney SV-1690) with a capacity of 880 hp. With. The maximum speed is 340 km/h. Armament - two machine guns MS 17, firing through the propeller. The H-123 could carry one 250-kg bomb under the fuselage, or four 50-kg bombs on the lower wing holders, and, even without air brakes, dive at an angle of up to 80 degrees. The aircraft was mass-produced from the spring of 1936 to November 1938 with a total circulation of 260 copies. The Henschels, nominally considered fighters, proved to be excellent in Spain as an aircraft for direct support of ground forces, demonstrating high survivability, a successful combination of speed and maneuverability,

the ability to take off from any lawn. Diving at the target almost vertically, they were practically invulnerable to anti-aircraft guns and remained in combat formation until the middle of 1944, until they were completely knocked out. However, already at the time of adoption, this aircraft was considered an intermediate link in the creation of a more advanced pike.

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a box with the best performance and capable of carrying a large bomb load.

The chief designer of the Junkers company German Polman has been developing such a machine since 1933. Therefore, when in January 1935 the Ministry of Aviation determined official specifications for a new diving combat aircraft and announced a competition for the best project, the first three prototypes were already being built at the Junkers plant. The requirements of the ministry almost ideally suited the almost ready-made two-seat single-engine machine, which made its first flight on September 17 of the same year and, having defeated the aircraft of the Arado (Ag-81), Blom and Foss (Na.137) firms in the competition, "Heinkel" (Not-118), was put into service. Of course, the personal sympathies of Udet, who was appointed head of the Technical Department, and the skill of the Junkers chief pilot, shown during comparative tests in Rechlin, played a role in the choice. As E. Heinkel later wrote, the pilot squeezed everything that it could give out of the car and "each time, making an attack, he literally put his plane on his head", confidently exiting a dive into horizontal flight: "Bombing flights were accompanied by such a monstrous roar that goosebumps ran through the body. The howl of these infernal machines, and they deserve such a comparison, was indescribable.

In his aircraft, which received the designation -87, G. Polman managed to combine good controllability, excellent visibility and sufficient structural strength. Not wanting to weaken the wing with cutouts for landing gear niches, he made the struts non-retractable, and to reduce aerodynamic drag he enclosed them in large fairings. To reduce the height of the struts, a reverse gull wing was used. Slotted ailerons and flaps contributed to good maneuverability and controllability. A distinctive feature of the aircraft was its ability to dive vertically to the ground, providing the highest accuracy of bombing. So that the "thing" does not go beyond the limits for soon

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Sti, air brakes were installed on it in the form of two underwing deflected plates. The most important innovation was the automatic dive, which ensured that the car exited the dive after dropping a bomb with a constant overload, while the efforts on the handle did not exceed the standard ones for level flight. A special electromechanism rearranged the trimmer of the elevator. Subsequently, an altimeter was included in the dive automaton circuit, which determined the start of the withdrawal, even if the bomb was not dropped. If necessary, the pilot could "squeeze" the automation with an effort on the handle and bring the matter to an end.

The first mass-produced machines, produced at the beginning of 1937, were equipped with an air-cooled Litpo-2100 engine, had a take-off weight of 3390 kg and a maximum speed of 318 km/h. Small arms consisted of two 7.92-mm machine guns: one was located in the right wing, the second was in the cockpit of the gunner-radio operator who covered the tail of the aircraft. The normal bomb load, as a rule, did not exceed 250 kg. The bomb was suspended under the fuselage, and so that it would not catch the propeller, a special frame-type device took it to a safe distance. Due to the clearly insufficient engine power - 680 hp. — the "thing" could hardly lift a 500 kg bomb, while the shooter had to stay on the ground. However, this disadvantage was compensated by the fact that an experienced pilot could lay out a bomb load in a circle with a radius of no more than 15 m.

When the Lito-211A engine with 1200 "horses" got at the disposal of the German designers, the result was an aircraft that was qualitatively superior to its predecessor. bomb load in

500 kg became normal. It was possible to stir it not only under the fuselage, but also on four underwing bomb racks (4 bombs of 50 kg caliber). Instead of one MS 17 wing machine gun, two were installed. With a takeoff weight of 4300 kg, the speed increased to 380 km/h, to 8000 m - the ceiling. The flight range was 780 km. After a successful debut, the order for the production of "pieces" was increased from 396 to 964 copies.

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ditch. Since the summer of 1938, the production of the L1-87V modification in [Germany was carried out by three factory.

Until the end of August 1939, the Luftwaffe received approximately 460 units. Very soon, the whole of Europe heard the howl of Polman's "infernal machines".

Another very successful Junkers machine was the L-88 front-line bomber. Initially, it was planned to make another "schnellbomber" with practically no defensive weapons, with a maximum speed of 500 km/h and a bomb load of up to 800 kg. But by that time, the leadership of the Luftwaffe had come to the conclusion that maximum speed was not a priority for a bomber, its main function was to take on board the maximum possible amount of payload and deliver it exactly to the target. Already during the tests of the prototype, which took place in September 1937, the manual of the requirements for the aircraft was changed, with emphasis on the possibility of dive bombing and the strengthening of weapons. In the end, after four years of work, the best bomber of the beginning of World War II and the most massive twin-engine combat aircraft produced from 1939 to 1945 in the amount of more than 15,000 copies (including the fighter version) were launched into the series.

Bomber LI-88A-1 model 1939 with Lito-211V engines developed a maximum speed of "only" 450 km/h. Take-off weight - 10,400 kg flight range - 1700 km, ceiling - 9800 m. Four crew members - pilot, bombardier, flight engineer, radio operator - were placed back to back in one cockpit. Armament - three 7.92 mm MS 15 machine guns: one in front and two in the rear hemisphere. Thus, the flight parameters of the aircraft did not represent anything particularly outstanding. The high efficiency of the "eighty-eighth" as a front-line bomber was ensured by its other abilities: the remarkable accuracy of bombing and the power of the bomb salvo. Inside the two bomb bays there were 28 high-explosive fragmentation bombs of 50 kg caliber Plus on under

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wing holders usually hung four "hundredths", which provided a bomb load of 1800 kg. For flying over short distances, four 250-kg bombs or two 500-kg bombs were taken under the wing, which brought the weight of the "payload" to 2400 kg. On the aircraft, all operations associated with the entry and exit from a dive were automated; during climb, the afterburner mode of operation of the motors was switched on and off; after reaching a certain altitude, the second speed of the supercharger was automatically switched on. True, only bombs mounted on external holders could be dropped from a steep dive. The survivability of the aircraft was ensured by protected gas tanks, duplication of oil and gas systems and control wiring, a year later an armored back for the pilot was installed, the gunners were protected by side and lower armor plates 4–9 mm thick.

German generals considered air reconnaissance and artillery spotters to be an obligatory link in the chain of interaction between aviation and ground forces. On their order, the Henschel firm created a light two-seat parasol monoplane Hs-126, which made a significant contribution to the Wehrmacht's "lightning victories". He is also well known to Soviet soldiers under the nickname "crutch". Since 1938, 780 copies have been produced. In 1940, the Henschel was replaced by the famous "frame" - the Em-189 - a two-beam tactical reconnaissance aircraft, maneuverable, incredibly tenacious, repeatedly cursed by soldiers of all fronts.

At the same time, the failed L-86 bomber, which was being withdrawn from service, was redesigned and re-profiled into an excellent strategic reconnaissance aircraft. Climbing to a height of 14,000 meters, he freely plied the skies until 1943. In the USSR, they never bothered to create anything of the kind.

With this "assortment" totaling 4,093 aircraft (including 1,542 bombers), Germany plunged into a world war - with Comrade Stalin's benevolent neutrality. So benevolent

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It can be concluded that any Soviet person who publicly called Genosse Hitler a "bad person" could be guaranteed to "dry crackers"

There were 3,335 combat aircraft in France, 1,992 in England, and 1,576 in the North American States.

In the Land of Soviets on October 1, 1939, 12,677 combat aircraft.

Lessons were also learned in Moscow.

Under the influence of the first news from Spain about the success of the I-15 fighter, N.N. Polikarpov was instructed to carry out modernization "taking into account combat experience" and resume production of the biplane. The modernization consisted in the fact that the designer, under pressure from the military, removed the "gull" and made the upper wing straight (although, according to the results of blowing in the wind tunnel, TsAGI issued a verdict that the stability of the path with the "gull" type wing only increases with increasing speed). Later, Nikolai Nikolayevich wrote to the head of the GUAP M.M. Kaganovich: "All our numerous attempts, both by blowing and by direct demonstrations in flight, to indicate that the I-15 is highly maneuverable and sensitive to aircraft control, were not crowned with success at that time. For I, as a designer, could not provide evidence of the stability of the track in the form of records of aircraft oscillations with an inertialess device due to the absence of such devices in the USSR."

A boosted M-25V engine (750 hp) was supplied, the wing area was increased, and the structure was strengthened. Armament consisted of four PV-1 synchronous machine guns and 150 kg bombs. The weight of the empty aircraft has increased by 350 kg. The flight performance of the heavier and less maneuverable I-15 bis (I-152) fighter turned out to be lower than that of the I-15, especially the rate of climb and ceiling. The maximum speed was 370 km/h at an altitude of 3000 m instead of the expected 430 km/h. At the very end of 1937, at plant No. 1 named after Aviakhim, this, say

Frankly, the unpromising aircraft was put into production in a large series - 2408 copies. Moreover, at the same time it was decided to build a new modification.

At the beginning of 1939, the production of the I-153 biplane fighter was launched, which was a direct development of the I-15 aircraft with an M-62 engine and an AV-1 variable-pitch propeller. The designer again returned to the "seagull" scheme. The aircraft, which weighed 1765 kg and developed a speed of 425 km/h at an altitude of 5000 m, had an armored back for the pilot and a retractable landing gear. Armament — four synchronous ShKAS machine guns. It is traditionally stated that in this design the biplane scheme was brought to perfection, "the flight qualities of the machine can be called outstanding." The decision to rivet this apparatus during the two pre-war years in the amount of 3437 pieces can be called just as outstanding! However, on the one hand, there were no new fighters available, on the other hand, "it was necessary to replenish the fleet of fighter aircraft, and the factories had to be loaded." The last 64 "Seagulls" rolled out of the workshops of plant number 1 at the beginning of 1941] of the year.

All these years, the team of N.N. Polikarpov improved the I-16 aircraft, its flight data, armament, and propulsion system. Type 10 received the M-25A engine with an HP 730 power. And

additionally two synchronous machine guns ShKAS. In 1938, the M-25V engine was installed on the Type 17, and the wing machine guns were replaced by two ShVAK cannons, and a suspension of up to 200 kg of bombs was also provided. Type 18 was equipped with an M-62 engine with a two-speed supercharger with a power of 920 hp. s, developed a speed of 463 km / h and was armed with four machine guns. Type 24 with M-63, launched in a series in 1939, had a takeoff weight of 1900 kg. The specific wing load increased from 92 to 131.5 kg/sq. m, the maximum speed reached 489 km / h, and landing - 125 km / h. Armament consisted of two ShVAK cannons and two ShKAS machine guns. The last, 29th modification, in addition to two synchronous ShKASs, carried in the lower part of the fuselage the latest

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12.7 mm Berezin machine gun, firing 800 bullets per minute; up to 200 kg of bombs or six RS-82 rockets were placed under the wings.

However, many of these figures are relative. Aircraft of the same type could be very, very different from each other in terms of weight, size, engine power and flight characteristics.

First, before the war in the USSR there were no unified state standards and a unified system of design documentation. Each plant had its own norms, standards and technological approvals. Therefore, when the production of an aircraft was transferred from one plant to another, all the drawings had to be made anew. In addition, local craftsmen tried in every possible way to simplify and "improve" the production process. As a result, each plant made its own aircraft. For example, the I-15 of plant No. 1 weighed 20 kg more than the exact same I-15 of plant No. 39.

Secondly, the production car invariably turned out worse than the reference copy, not to mention a significant percentage of defects in Soviet products.

Thirdly, the results obtained in the course of the tests depended on the degree of interest of the party conducting the tests, the methods used, and instrumentation—extremely primitive—and, finally, on the degree of sobriety of the pilot and measurer.

Known is a letter from Nikolai Polikarpov to Yakov Smushkevich about "miracles" with measurements of the speed of the I-16 fighter with the M-25A engine. According to the results of tests at plant No. 39, the aircraft had a speed of 456 km/h at an altitude of 3000 m, and at plant No. 21 it was already 470 km/h. The All-Russian Research Institute of the Air Force, in September 1936, at high speeds, developed 505 km / h, and a year later the same research institute reported that the maximum speed of the machine at an altitude of 3000 m was 445 km / h, "i.e. 25 km / h less than the measurements of plant No. 21 and 60 km / h. less than their measurements from 1936.

"It is also interesting to note," wrote Polikarpov, "that a month and a half before that we received an official report on the double I-16M? 25A (UTI-4), where it was

height with a screw $D = 2.9 \text{ m}$ \ W3000 \u003d 474 km / h, which is 29 km / h more than that of a single-seat, which is incredible.

In total, factories No. 21, 39 and 153 until the beginning of 1941 produced 9450 donkeys.

Head of the 1st Main Directorate of the NKOP and part-time chief designer of plant No. 39 S.V. Ilyushin in 1938 started a deep modification of the DB-36 bomber. More powerful engines were installed on it, armament was strengthened, the problem of fuel placement was solved in a new way, the contours of the fuselage were somewhat changed and the airframe design was radically changed in accordance with the principles of the plasma-template production method, mastered with the introduction of the American "Douglas". An important result of using this technology was a sharp decrease in the labor intensity of the process: if earlier it took more than 30 thousand hours to build one bomber, then after modernization it was 14,300.

development of the Mistral Major with a takeoff power of 1100 hp, and VISH-23 controllable pitch propellers. The aircraft received new navigation equipment and an AVP-12 autopilot, which ensured heading, roll and pitch stabilization. It was planned to replace the ShKAS machine guns with UtraShKAS of the same rifle caliber, but with a crazy rate of fire — about 3,000 rounds per minute.

As a result, it was supposed to get a practically new bomber with excellent characteristics: maximum speed - about 500 km/h at an altitude of 7,000 m, service ceiling - 11,000 m, range - 4,000 km.

In addition, in February 1938 S.V. Ilyushin came up with the initiative to build a special attack aircraft, "operating at low altitude and having powerful offensive and defensive weapons and with an engine that develops maximum power

at the ground." Addressing the members of the Politburo, the designer wrote:

"Our types of attack aircraft, both those under construction in a series - VULTI, KhAI (design Neman), and experienced ... have great vulnerability, since not a single vital part of these aircraft: the crew, engine, oil system, gas system and bombs are not protected. This can greatly reduce the offensive capabilities of our attack aircraft.

Therefore, today there is a need to create an armored attack aircraft, in other words, a flying tank, in which all vital parts are reserved.

Conscious of the need for such an aircraft, for several months I worked on solving this difficult problem, the result of which was the project of an armored attack aircraft.

In order to implement this outstanding aircraft, which will invariably increase the offensive capabilities of our ground attack aircraft, making it capable of inflicting crushing blows on the enemy without losses or with very small losses on its part, I ask you to relieve me of the post of Head of the Main Directorate - instructing me release the aircraft for state testing in November 1938.

The task of creating an armored attack aircraft is extremely difficult and involves great technical risk, but I take on the task with enthusiasm and full confidence for success."

Iosif Vissarionovich granted the request, and Sergei Vladimirovich, relieved of his high administrative position, began designing the machine, which received the code name TsKB-55 (BSh-2). Undertaking to make an "outstanding aircraft", S.V. Ilyushin did not start from scratch.

The first attack aircraft, which embodied the concept of a "winged tank", ironing enemy positions at low altitude, was again released by Junkers. It is understandable, besides him, no one knew how to make all-metal aircraft at that time. Born in 1917, semi

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The Junkers 0-1 Thoraglider had an armored fuselage that protected the engine, fuel tanks and crew from ground fire. The British somewhat improved this scheme by creating the Salamander aircraft, on which the armored box not only protected against bullets, but also perceived aerodynamic loads from the wing. But on the whole, the idea of armored aircraft was not developed in the West.

Proletarian military experts urgently demanded such a combat vehicle, calling it "Boevik". By their order, the Tupolev Design Bureau developed draft designs for the heavy attack aircraft ANT-17 and ANT-18 based on the twin-engine "cruiser" R-6. It was supposed

arm the aircraft with dynamo-reactive cannons and hang up to 1000 kg of armor on it. The projects were not implemented.

With great enthusiasm in the spring of 1930, the designers assembled in the Central Design Bureau organized by the Chekists set to work. Three types of attack aircraft were built here at the same time: light, heavy and special-purpose attack aircraft. All of them represented a copy of the R-5 scout with various armor and armament options.

The light attack aircraft LSh with hinged armor turned into a heavy TSh-1 during the construction process. The latter had a mixed design, the front part of the fuselage was an armored box, in which the engine with radiators and tanks, the cockpit and the gunner were placed. The tail section was attached to it, welded from steel pipes and covered with a cloth. The armored box, which weighed 520 kg (the take-off weight of the aircraft reached 3300 kg), was assembled from flat and cylindrically bent pieces 4–6 mm thick. At the same time, welding, bolting and riveting were tried. It was not possible to master the welding of the armor, the rivet seams did not take root due to the large number of necessary holes - they settled on bolts with ordinary nuts. The armament of the TSh-1 consisted of two PV-1 synchronous machine guns, two Degtyarevs on a turret, and two designed by A.V. Nadashkevich, batteries of four PVs installed under the lower wings

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yami, as well as a "grenade box" - a box for 300 hand grenades. The TSh-2 differed only in that it was decided to hide the batteries in the wings, which made it possible to somewhat improve the flight performance of the aircraft. The speed reached 213 km/h, the ceiling was 4220 m. The aircraft was put into production and immediately, at the end of 1932, it was stopped, having made ten copies. The special-purpose attack aircraft, tested in the same year, was armored only from below and had folding wings. It was not accepted into service.

By the spring of 1934, the brigade S.A. Kocherigin, a heavy monoplane attack aircraft TSh-3 was built with an M-34F engine, fixed landing gear, two ShKAS batteries of five machine guns each, with a speed of 250 km/h. But he remained in one copy. The large mass of armor with insufficient engine power was the reason that for a long time the problem of the attack aircraft could not be satisfactorily solved. No one has been able to create a machine that would combine powerful armament, high speed, reliable armor protection, acceptable in terms of flight technical and operational qualities.

Therefore, serial R-5 (seven machine guns) and DI-6 (five machine guns) were converted into attack aircraft by increasing the number of barrels. They didn't have armor. A real opportunity to create a truly armored attack aircraft presented itself when in the laboratories of the All-Union Scientific and Technical Institute of Aviation Materials (VIAM) under the leadership of S.T. Kishkin and N.M. Sklyarov, AB-1 armor was obtained, suitable for the manufacture of complexly stamped biconvex hulls.

S.V. Ilyushin sketched out a draft of a two-seat single-engine aircraft, the nose of which was a 5 mm thick armored box included in the power circuit of the fuselage. She protected the engine, oil coolers, gas tanks, the pilot and the navigator-gunner. In addition, additional protection of vital parts of the machine was provided inside the hull with

help

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armored capsules, the crew - with special armored shields. The designer promised that with the AM-34FRN engine, the attack aircraft would have a maximum ground speed of 400 km / h, a flight range of up to 800 km, a ceiling of 8000 m, carry 8 machine guns on board and up to 300 kg of bombs on an external sling.

"Enthusiasm and complete confidence in success", shown by Sergei Vladimirovich, can be appreciated, given that the AM-34FRN engine, designed for

the TB-7 bomber was not even theoretically suitable for a "flying tank" (and was generally taken out of production soon), there were simply no powerful low-altitude engines, and the technology for manufacturing armor plates with a double curvature surface had yet to be created!

As a result, a year after the landmark letter, the "difficult problem" remained unresolved: the BSh-2 existed only in sketches and layouts.

The country's defense capability was strengthened in other areas as well. Comrade Stalin, being a real Marxist, knew that the Soviet Organism was infected with gangrene from birth and required permanent cleansing and blood transfusion. The birthmarks of capitalism sprouted as metastases of counter-revolution.

Immediately after the historic February-March Plenum of the Central Committee of the native VKP(b) in 1937, People's Commissar for the Defense Industry M.S. Rukhimovich was instructed to prepare a plan of action "to expose and prevent sabotage and espionage" in his "eparchy." Rukhimovich did not understand the task, confining himself to a formal reply that the former leadership of the people's commissariat screwed up. Thus, he showed his enemy essence and, together with his closest assistants, went to be shot. °— Then the NKVD investigative teams went through the military factories, scientific and experimental design organizations with a fine comb. The picture was horrifying: directors, chief engineers, technologists,

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instructors, heads of workshops, technicians, and even locksmiths were among the cadres of all intelligence agencies in the world.

Once forgiven by the most humane authorities, "saboteurs", instead of sincerely repenting and "disarming before the Party", mutated into inveterate "enemies of the people" and hundreds, yes, hundreds, thousands, recruited into pitions and signed up as terrorists .

Only at the plant number-24 named after M.V. Frunze, and only in the second half of 1937, employees of the Moscow Regional Directorate of the NKVD identified a THOUSAND (!) "Anti-Soviet socially alien and suspicious for espionage and sabotage" elements. The plant made aircraft engines designed by A.A. Mikulin constantly had problems with them: "The weak points of the forced AM-34FRN engine turned out to be carburetors, the ignition system and the driven centrifugal supercharger (CSP), which at high altitude "ate" too much of the engine power." Yes, and how could it be otherwise, if the plant was "discovered and liquidated 5 espionage and sabotage groups with a total of 50

person, of which:

1. Anti-Soviet Right-Trotskyist group, consisting of the former plant director Maryamov and technical director Kolosov.
2. Spy and sabotage group of Japanese intelligence consisting of 9 people.
3. Spy and sabotage group of German intelligence consisting of 13 people.
4. Spy-sabotage group of French intelligence consisting of 4 people.
5. Terrorist and espionage and sabotage group of the Latvian intelligence, consisting of 15 people, headed by the former deputy director of the plant Gelman.

Also arrested was the head of the technical sector of the OTK of the plant, the troikist Tarakhuntov, in whose case an investigation is underway with the expectation of opening the work organized by the Trotskyists at factory".

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With such a contamination of the plant with "enemy gangs", it remains to be surprised that it has not yet taken off into the air, but continued to provide engines for bombers. Apparently, saboteurs from different states, fearing for their own lives, interfered with each other.

At the Perm Aircraft Engine Plant No. 19, the members of the "anti-Soviet terrorist subversive organization" turned out to be chief dispatcher Basin, chief metallurgist Shumin, chief engineer Briskin, and the "organization" was headed by technical director A.D. Shvetsov.

In Zaporizhzhya, at plant number 29, five chief designers were replaced in three years. They selflessly harmed at the instigation of director S.A. Alexandrov, who had a task from French intelligence to prevent the introduction of M-87 engines into the series. In particular, A.S. Nazarov, who had set up the production of the domestic Mistral-Major, was transferred to Voronezh with a demotion and arrested there.

And the director of plant No. 39 S. Margolin, together with the chief engineer Novoselsky and party organizer A.O. The "bastards" turned out to be Kalnin. And the director of the plant of experimental designs No.-156 D.N. Osipov - too (like the chief engineer of the plant Novoselsky), and the next director M.A. Usachev, and director V.A. Kuchur. And also E.I. Miroshnikov — director of the Gorky aircraft plant No. 21, K.D. Kuznetsov - director of plant No.-124 (with chief engineer Yu.M. Mogilevich), S.G. Khorkov is the director of Factory No. 207, recruited by the Italian General Umberto Nobile and derailing an ambitious military airship program.

At the Kharkov plant No.-135, the director Vasilyev and the chief engineer N.E. Shvarev. The head of the 5th department of the GUGB of the NKVD of the USSR, Nikolaev sent a special report to the name of Marshal of the punitive troops N.I. Yezhov:

"The failure to timely eliminate defects on the R-10 aircraft identified by testing, and the failure to ensure the production of these aircraft is entirely within those forms of time.

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control, which has been widely practiced by pests from the Air Force and the aircraft industry and requires the intervention of the governing bodies. Instructions are given through the GUGB to investigate the reasons for these delays and their initiators through undercover and investigative means.

The "initiators" were quickly identified. Following the director and chief engineer, in April 1938, I.G. Neman - S.Ya. Zhelkovsky and RS. Maron, a little later E.I. Baru and A.I. Unica.

"Enemy nests" were burned with red-hot iron. The heads of most factories, the entire top of TsAGI and TsIAM, leading designers of aircraft and engines were arrested.

For A.N. Tupolev, in addition to the position of Chief Designer of TsAGI Experimental Aircraft Building, who served as Deputy Head of the Main Directorate of the Aviation Industry, people in civilian clothes came on October 21, 1937. Test pilot M.L. Gallay recalled: "When we arrived at work that morning, we saw that work was in full swing at the hangar site. The painters conjured at the tails of the planes standing on the platform. Prior to that, the letters "ANT" flaunted on the vertical tail of the machines belonging to our department, which meant Andrey Nikolaevich Tupolev, the chief designer of all aircraft created at TsAGI. And these letters were hastily smeared over. The oppressive atmosphere of Stalinist terror by this time completely engulfed the country. People, including publicly known ones, one after another disappeared into the dungeons of the NKVD, it seemed, forever. Therefore, special ingenuity was not required to understand what the smeared letters mean - Tupolev was arrested.

After the investigators used some specific methods of interrogation and threatened to kill his family, Andrey Nikolaevich admitted that he was the head of the "Russian Fascist Party", a French agent, and as an additional side job he introduced a "perverse

American technology", gave wrecking installations and sold drawings of his Messer aircraft

Schmitt - according to them, Willy built the Me-110. Of course, such a hardened resident could not engage in espionage and sabotage activities without having accomplices. Over the next few months, the ANT brand was destroyed, the talented team, which gave the country a dozen serial cars, disintegrated. The closest employees of the Chief - V.M. Petlyakov, N.I. Bazenkov, V.M. Myasishchev, B.A. Saukke, A.E. Sterlin, M.N. Petrov, N.A. Sokolov, G.P. Saprykin, D.S. Markov, A.A.

Yengibaryan - were arrested and convicted, and the wife of ANT was imprisoned. As an example of a monstrous and cynical sabotage, the terms "Tupolevshchina" were used.

and "petlyakovism".

In 1938-1939, they found themselves on the prison bunk: Italian communist émigré RL. Bartini is the chief designer of the Research Institute of the Civil Air Fleet, the author of several aircraft, and now a "personal friend of Mussolini" and a seller of Soviet secrets to Italian intelligence; K.A. Kalinin, the creator of the first mass-produced civil aircraft and the combat "flying wing" VS-2, at first was his ordinary draftsman, but even there he "mixed up the drawings", had to be arrested; chief designer of BOK aircraft and stratospheric nacelles V.A. Chizhevsky; designers of helicopters and gyroplanes A.M. Cheremukhin and A.M. Isakson; Head of the Department of Oil Engines of CIAM A.D. Charomsky - the author of the AN-1 aviation diesel engine with a power of 900 hp; Head of the Research Sector of TsAGI Academician A.I. Nekrasov, "recruited" by the FBI during a trip to America.

In the words of L.D. Trotsky, "the stupidity of the accusations stood at the level of their meanness."

The "German spy" S.M. was seized from the Ilyushin "firm". Yeger, from Mikulinskaya — a specialist in aircraft power plants K.V. Minkner (A.A. Mikulin got off easy - he was simply removed from the post of head of the Design Bureau of Plant No. 24). The turn came to the Kharkiv genius, who was the first in the USSR to use retractable landing gear: I.G. Neman was arrested and sentenced to fifteen years "for organizing sabotage at a factory

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and as an agent of foreign intelligence", who released "unusable aircraft".

Deputy Polikarpov D.L. Tomashevich was accused of killing the national hero Valery Chkalov - in collusion with the director of plant No. 1 M.A. Usachev and the head of the flight test station V.M. Parae, then the criminal trail led to Zaporozhye, to factory No. 29, where a new purge had to be arranged. No one has escaped justice.

N.G. was raked in for the second time. Michelson, I.M. Kostkina, B.S. Stechkin, leading aviation gunsmith A.V. Nadashkevich, and the largest technologist for wooden aircraft construction V.S. Denisov - on the third.

The GUAP commission arrived at the Grokhovsky Experimental Institute and made a decision: the construction of aircraft is inexpedient, the practically finished machines G-26 and G-38 are to be destroyed, as well as the entire institute as a whole. A fighter and a "flying cruiser" of the "G" brand were burned right at the airfield of plant No. 47 (to be honest, the cars were really "g", especially the wooden "Flying Cruiser"). Designer P.A. Ivensen was sentenced to five years on Solovki. The director of the institute was caulked in Osoaviakhim, where he served as the head of the economic department and wrote articles for the Tekhnika-molody magazine. Leading aircraft designer B.D. Uralpov stopped building airplanes and went to study at a university.

The industrial and bureaucratic nomenklatura, directors and chiefs of central departments, were liquidated without undue delay - we do not have irreplaceable ones. Kharlamov, head of the 8th department of TsAGI V.I. Chekalov, Deputy Head of the TsAGI Personnel Training Department E.M. Furmanov, head of the 1st (aviation) Main Directorate of the People's Commissariat of Defense Industry A.M. broom,

Head of the Main Directorate of the State Fund for Fundamentals of Investments I.F. Tkachev, head of the Air Force Research Institute, Divisional Commander N.N. Bazhanov, director of the Voronezh aircraft plant No.-18 S.M. Shaba

shvili, director of the Perm Motor Plant I.I. Poberezhsky, director of the Gorky aircraft plant No.-21 E.I. Miroshnikov, director of the Moscow aircraft plant No. 24 I.E. Maryamov, director of the Rybnyy Motor Plant No. 26 G.N. Korolev, director of the Irkutsk aircraft plant No.-125 A.G. Gorelits, director of plant No.-207 S.G. Khorkov, deputy head of the planning and technical department of plant No.-156 K.A. Inyushin, director of the rocket NII-3 IL. Kleymentov.

They were not in a hurry with the designers — they could still come in handy. They were humanely given ten to fifteen years of survival in Kolyma or in other places no less life-threatening. So the members of the Commission for the construction of all-metal aircraft went to the camps, providing the country with domestic aluminum - Professor I.S. Sidorin, G.A. Ozerov, I.I. Pogossky, A.I. Ways - LOV.

Although there were exceptions. In the Voronezh prison of the UNKVD, after seven months of investigative actions, K.A. Kalinin, N.G. was "exchanged" in Leningrad. Michelson. In February 1938, one of the pioneers of the Russian aircraft industry, V.N. Chionti: He was born in Athens and, of course, spied for Greece. Then V.I. was killed. Bekauri promised too much, his "anti-Soviet projects" were too expensive, moreover, he turned out to be a German spy; the Special Technical Directorate headed by him (the former Ostekhbyuro) was abolished and divided into three independent institutes. In the autumn of 1942, the NKVD remembered Colonel P.I. Grokhovsky, sewed on him the intention to betray the Motherland, participation in a counter-revolutionary organization, and shot him six months later.

Wonderfully, being retired, one of the monsters of the Stalin era, V.M. Molotov):

"To a large extent, our Russian intelligentsia was closely connected with the prosperous peasantry, whose pro-kulak sentiments are a peasant country.

The same Tupolev could become a dangerous enemy. He had great connections with the intelligentsia hostile to us. And if he helps the enemy and also, thanks to his authority, draws in others who do not want to understand, although they think that this is useful to the Russian people ...

Tupolevs - they were once a very serious issue for us. For some time they were opponents, and more time was needed to bring them closer to Soviet power...

Tupolev belongs to that category of intelligentsia that the Soviet state really needs, but in their hearts they are against it, and along the line of personal connections they carried out dangerous and corrupting work, and even if they did not, they breathed it. Yes, they couldn't help it!

Not by propaganda, but by their personal influence, they are dangerous. And it is also impossible not to reckon with the fact that at a difficult moment they can become especially dangerous. You can't do without it in politics. They cannot build communism with their own hands.

The nomenklatura also broke firewood, of course.

It should be noted that the survivors of the "cutting down the forest" understood the party's policy correctly. Boris Stechkin, after serving a total of nine years, will say: "I should have talked less. It's not the time to talk." Moreover, A.D. was not offended. Charomsky - proletarian origin, commissar youth: "Its own party, its own government - it sometimes makes mistakes, but it also corrects mistakes."

While Tupolev was "approaching" Soviet power, learning to breathe in time with its breath and slurping gruel in the Butyrka prison, his employees, who accidentally remained at liberty, were engaged in the production and improvement of mass-produced machines. Work on high-speed medium bombers was entrusted to A.A. Arkhangelsk, for fighters and attack aircraft - P.O.

Sukhoi, I.N. fought over the refinement and implementation of TB-7. Nezval. For several years, "Tupolev's name disappeared from the aviation vocabulary of the country. It turned out that in the USSR there were no aircraft known to millions of people under the designation ANT. Instead of

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they began to talk about aircraft with the abbreviation TsAGI: TsAGI-25, TsAGI-4 ... "

With regards to promising developments L.L. Kerber recalled:

"In order to create at least the illusion of an experimental aircraft building, the then People's Commissar M.M. Kaganovich (his turn soon came, and after an unpleasant conversation with Molotov, so they said in aviation circles, making sure that Kaganovich No. 1 had sacrificed him, he shot himself) transferred a group of secondary chief designers there - Belyaev, Shevchenko, Gudkov, Gorbunov and others. Perhaps they were capable people, but, unfortunately, they did not create anything worthwhile. This was to be expected, because in those conditions, in addition to abilities, it was required to have a diabolical penetrating power in order to penetrate the top and win authority there. The state system preferred stable authorities.

In order to prevent them from squabbling among themselves, as is traditionally characteristic of Russian princes and chief designers, Kaganovich No. 2 appointed a director over them, a kind of "unter Prishibeev" - Leikin. Of course, he strangled the bite, but he didn't get good planes. "

In principle, there was no time to think about new aircraft. Hunting for "enemies of the people" turned out to be an exciting activity. In 1937, the Air Force did not even issue a task for their design. Although, in order to formulate tactical and technical requirements for promising models of military equipment, the Logistics Department summarized the experience of the war in Spain for almost a year, studying the reports of pilots, collecting information about enemy aircraft and tactics used by them. However, the Directorate in full force, headed by divisional commander B.I. Bazenkov turned out to be the center of a "terrorist organization", which urgently had to be neutralized by the valiant Chekists, "Wrecker Development" remained unclaimed, the process of updating the aircraft fleet was slowed down for almost three years.

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Paralysis of the Soviet design thought of that period by A.S. Yakovlev, who combined the qualities of a talented designer and a clever courtier, explained in his memoirs the euphoria of success:

"Our fighters were not inferior in speed to the Messerschmitts, but the weapons of both were approximately equivalent ... our maneuverability was better, and the Messers got hit hard by them. The leaders of our aviation were very happy about this circumstance. An atmosphere of complacency was created; they were in no hurry to modernize the domestic fighter aircraft."

As a result, from 1936 to 1939, the Red Army Air Force did not receive a single new combat vehicle (except for the dubious value of the BB-22, whose name front-line pilots deciphered as "useless bomber").

Meanwhile, hundreds of aviation specialists were found in prisons and camps. They wrote appeals to all instances, offering to "atone for their guilt" by hard work for the good of the Motherland, to build the best aircraft in the world and the most advanced engines in the world. Experienced inmates like A.V. Nadashkevich was practically certain of the result: "They will shoot the apostates, otherwise the king will remain naked. As for us, since we know how to make excellent aircraft, without which the country cannot live, we will not be touched. Moreover, remember, you are hung with orders, and if one day it is necessary, they will be removed, and you - you will again go to the Lubyanka.

Indeed, it was a sin not to use such a resource — “the whole color of Russian national aviation thought”. There were serf artists and serf artists in Russian history, why not be a serf scientist? Let us recall the thesis of the ever-living Ilyich about the corrupting effect on "specialists" of high salaries?

In the summer of 1938, after a lively correspondence between the people's commissariats of the defense industry and internal

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cases, from the arrested "enemies of the people" they began to form design teams, which, under the protection of the NKVD, were supposed to strengthen the country's defense capability. They existed within the framework of the Department of Special Design Bureaus, later renamed the 4th Special Department of the NKVD. Enemies-engineers were offered a simple choice: either turn into "camp dust", or: "Airplane - into the air, you - go home." So that they work hard on the conscience.

In one of these "sharashkin offices", having washed the year with interrogations, A.N. was offered to work. Tupolev, and to begin with, to compile a list of well-known aviation specialists. “Frankly, I was extremely puzzled,” Andrey Nikolaevich said, “I knew all those arrested before me, but after? Will it not turn out that God knows how many more people will be sent to prison according to my list? On reflection, I decided to rewrite everyone I know, and I knew everyone. Can't it be that the entire aviation industry was jailed? This position seemed reasonable to me, and I wrote a list of 200 people. And what do you think, it turned out that, with rare exceptions, all of them are already behind bars.”

The organization, called TsKB-29 of the NKVD, was housed in the eight-story building of TsAGI KOSOS, converted into a special prison. There were four independent bureaus in the Central Design Bureau, each of which, under the leadership of a security officer, worked on its own project. Group V.M. Petlyakova designed the long-range high-altitude fighter "100" with two engines, V.M. Myasisheva - long-range high-altitude bomber "102", D.L. Tomashevich - single-engine fighter "110". Group A.N. Tupolev - department "103" - a four-engine PB dive bomber designed to destroy large-tonnage warships. With a range of 6,000 km, it was supposed to drop heavy armor-piercing bombs on British squadrons from a height of 10,000 m at a speed of 900 km/h and smash them right “in the den”. A legend has taken root that he forced this monster to do a “crazy project”. the new People's Commissar of Internal Affairs "omnipotent" L.P. Beria.

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However, a long-term colleague S.M. Jaeger definitely states that the idea belonged to Tupolev himself:

“When A.N. Tupolev in the conditions of imprisonment (in the Bolshevsky camp) was “offered” to work, he came out with a proposal to develop a long-range dive bomber.

To us, a small group of engineers who then worked with him (RL. Bartini, GS. Frenkel, A.I. Nekrasov, A.V. Nadashkevich, A.Yu. Rogov), Tupolev explained the idea of creating this aircraft in this way.

— 1939! It looks like a war is brewing! In all likelihood, this will be a war between Western Europe and the USSR and England will lead it, it will become the main enemy. England's strength is her navy. Therefore, it is necessary first of all to create weapons to fight the fleet, and not only when it approaches our shores in battle formations, but also at its bases in England.

In general, “with a deep understanding of the military-political situation in the world,” Andrei Nikolaevich knew how to intrigue the Soviet leadership.

Engineers were sent to the plant number-82, located in Tushino. The special contingent consisted of 65 people. Here were A.D. Charomsky, B.S. Stechkin, former chief designers of engine-building plants A.M. Dobrotvorsky, M.A. Kolossov, A.S. Nazarov, rocket engine specialist V.P. Glushko.

1] January 1939, by the Decree of the Presidium of the Supreme Soviet of the USSR, the People's Commissariat of the Defense Industry was divided into the People's Commissariat of the Aviation Industry, the People's Commissariat of the Shipbuilding Industry, the People's Commissariat of Ammunition and the People's Commissariat of Armaments. In the system of the aviation industry, headed by M.M. Kaganovich, included 86 factories.

Following this, a representative conference on aviation issues was held in the Kremlin. It was attended by the heads of the People's Commissariat, military leaders, directors of factories, designers, famous pilots. Before the assembled

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the question was raised of how to eliminate the emerging "backward of the country in the field of military aviation" as soon as possible. It is not known which "secret adviser" opened the Master's eyes to such a blatantly unfavorable situation in the aircraft industry. In terms of the number of aircraft produced, the USSR, to put it mildly, was not inferior to any country in the world, surpassing, for example, France, three times. The reports of the Air Force Research Institute based on the results of comparative training battles led to the conclusion that Soviet aircraft are qualitatively superior to German ones:

"The Messerschmidt-10% aircraft with the YuMO-21% engine, according to its flight and tactical data, is lower than the high-speed fighter aircraft adopted by the Red Army Air Force ...

1. Aircraft "Heinkel-111" in terms of speed is lower than the corresponding aircraft of domestic production. 2. The rate of climb, range and ceiling of the Heinkel-111 aircraft are significantly lower than the requirements for modern twin-engine bombers."

Nevertheless, Comrade Stalin decided to re-equip the entire Soviet aviation as soon as possible. One of the historical tasks was the creation within one year of high-speed fighters and bombers of a new generation. For this purpose, it was proposed to organize new design bureaus, to involve everyone who wanted to work, and, first of all, "young design forces not connected with the mistakes of the past", which were to pull aviation out of the swamp, where it was dragged by "old specialists".

July 17, 1939 K.E. Voroshilov sent I.V. Stalinui V.M. Molotov draft resolution "On the development of aircraft factories of the NKAP". The document provided for an increase in the capacity of existing factories, as well as the construction of four new ones, so as to eventually produce 10,400 bombers, 13,000 fighters, 5,800 reconnaissance and attack aircraft in 1941, in total - 29,200 aircraft, excluding naval aviation. Moreover, it was emphasized that these capacities do not fully meet the needs of the Air Force for 1941.

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According to the resolution of the Politburo of the Central Committee of the All-Union Communist Party of Bolsheviks "On the development of aircraft engine plants", adopted in August, the production of aircraft engines was planned to be doubled. In September, a resolution "On the reconstruction of existing and construction of new aircraft factories" was adopted. It provided for the construction of 9 new factories, the reconstruction of 9 existing ones, and an increase in the production capacity of the aircraft industry by the end of 1941 by more than one and a half times. In October, a similar resolution was issued for aggregate and screw plants. Large orders were made to Western firms for the supply of machine tools and various equipment.

After the conclusion of a secret alliance with Hitler and the joint partition of Poland with the Nazis, a period of mutually beneficial political and military-economic cooperation began between the USSR and Germany. Already in October 1939, the People's Commissariat of Defense compiled a long list of samples

German military equipment, which was supposed to be bought for study. To select the "goods" in the Reich with the firm intention to spend a billion marks, a crowded commission headed by the people's commissar of the shipbuilding industry I.F. Tevosyan. The aviation and aircraft engine groups of the commission included A.I. Gusev, S.V. Ilyushin, N.N. Polikarpov, A.S. Yakov Lev, A.D. Shvetsov, I.F. Petrov, A.I. Gusev, V.P. Kuznetsov, P.V. Dementiev. The program of the visit was extensive, including meetings with Reich Marshal Goering and his deputy, General Udet.

Within a month, the hospitable hosts showed the Soviet experts the majority of the flagships and "beacons" of the National Socialist aircraft industry - the aircraft factories Junkers, Messerschmitt, Henschel, Focke-Wulf, Heinkel, Arado, Blom and Voss, Dornier, Bücker, engine-building companies Hirt, BMW, Argus, Junkers, enterprises producing propellers, radiators, bearings, piston rings, instruments, weapons, Air Force Research Center in Rechlin, Aviation Research

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institute in Göttingen. On the ground and in the air, many types of combat vehicles were demonstrated, including prototype aircraft and recently entered service: He-100, E-187, Ag-197, BE-109E, BE-110 fighters, bombers 1-87, L1-88, Non-111, Oo-215, Oo-217, scouts Vu-138, Vu-141, Non-115, N-126, EV-189, four-engine E-200, sports and training aircraft. The guests also visited a bomber air group in Hesse, a dive squadron in Cologne, a long-range reconnaissance squadron in Koblenz, the base of the Richthofen fighter squadron, and Goering's underground command center.

Such openness was alarming and aroused suspicions that the Germans were showing uninteresting junk. One of the Soviet generals so bluntly told the hosts "in a rather tactless manner" and demanded to show "the technology of today". The offended Udet beat his chest with his fist and swore by the honor of the officer that the vehicles presented were all that the Luftwaffe had. And he spoke the pure truth. Well, the "fascists" hid their promising developments, like the latest "Fokkers" and jet fighters. What did you want to dig into Hitler's safe?

(On the other hand, our designers fully appreciated the achievements of their German colleagues, and they could only dream of German working conditions, not to mention those engineers who plowed behind a fence with a thorn for food, the opportunity to see relatives once every two months and a shaky hope for revision of the case: "Knives, forks, plates, from which we are rather unaccustomed, emphasize the absurdity of my bowler hat and spoon. A girl in an apron brings meat with pasta and asks: "To you (this is for me, who was called "bastard" yesterday!) tea or cocoa?" The newcomer pinched his leg painfully, painfully: "My God, is this reality or fantasy?").

At the meeting of the Technical Council of the NKAP, held in December 1939, the main speaker N.N. Polikarpov stated that "German aircraft building is a step

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zero very far and came out on top in the global aviation industry", and revealed some "fascist" secrets:

"In terms of fighters, the Germans in terms of fighters attach great importance to speed as the main quality of this type. They say they only accept fast fighters, i.e. vertical maneuver; they consider a horizontal maneuver to be a passive defense, entailing a loss of speed, and, consequently, completely unacceptable. Therefore, they believe that maneuverable fighters are very good as passive weapons, and they recognize only high-speed fighters with vertical maneuver as active weapons. In order to achieve high speeds, they go to a huge increase in specific loads, that is, to reduce the wing area, to increase landing speeds, to lighten the machine in every possible way due to

small sizes and are looking for new ways to reduce the drag of both the entire machine and its individual parts ...

In terms of the development of external forms, the Germans have gone far, especially Heinkel. He gives the cigar-like shape of the machines and pays serious attention to the condition of the surfaces. From this point of view, Heinkel has a lot to learn...

From the experience of the war in Spain, they believe that the tail protection must be very good, so the crew of the bomber consists of 4 people: the front navigator, the pilot and two rear gunners - one under the tail, the other on top ...

German aircraft have a rather narrow assortment. There you will not find an aircraft made of 5-8 materials. Usually the aircraft is made of two materials: aluminum alloy and steel, and often the percentage of steel is very low. If we use wood, canvas, duralumin, steel and plastics in our aircraft, then the aircraft is made of aluminum alloys, electron and steel ... When we asked why they use duralumin so widely, for example, in spars, fuselage and etc., they

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we were told that, unfortunately, we are a poor country, and therefore we use steel for cannons, and we use duralumin for aircraft ... They widely use casting and stamping, cold and hot ...

The equipment of the German aircraft is very rich, in particular, the Germans pay much attention to communications. They think that a car without a radio is a blind car...

The preliminary design is not approved by anyone, only the layout is approved... Factory tests are carried out by the plant itself without any involvement from the Air Force, and after they have brought the car to a safe state, the Air Force arrives with a pilot, conducts flights or takes the car to itself and then gives a definite conclusion about the suitability of this machine...

In the drawings, which are signed in a wide series, no changes are allowed. The drawings are signed there by the aviation ministry, after which nothing can be changed there, or the change must be agreed with the aviation ministry ... The zero series is worked out so seriously that the Germans do not understand how a mistake can appear in a wide series. Therefore, the acceptance of the zero series is carried out very carefully, because this is the last obstacle in which the machine is being worked out."

That is, you cannot take an aircraft into service, and then teach it to fly for two years.

The closeness of Soviet science, total censorship, secrecy brought to the point of absurdity, forced each design bureau to invent its own "bicycle", step on the same rake, spend time and money on developing obviously dead-end directions (which would later be declared great achievements) - all this hindered development, led to a lag and new attempts to "catch up and overtake" the West, copying another Western model under the Soviet brand.

V.M. wrote about this problem. Molotov Academician V.I. Vernadsky back in 1936:

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"One of the main elements of scientific work is the wide and rapid awareness of the scientist about the ongoing scientific movement and the course of scientific thought. Science is one, and the scientist is infinitely diverse in the nature and scope of his interests.

Only he himself can set the limits of his scientific thought. Censorship cannot restrict it.

One of the most basic shortcomings of scientific work in our Union, requiring an immediate, radical and abrupt change, is the limitedness of our acquaintance with the world scientific movement.

It is disorganized and deteriorating. It's a big but fixable misfortune...

Since 1935 (as far as I know, this was not the case even under tsarist censorship), our censorship has turned its attention to scientific literature, which so insufficiently penetrates us according to our needs and possibilities. A number of articles and knowledge become inaccessible to our scientists."

About this he wrote to the head of the department of science of the Central Committee of the All-Union Communist Party of Bolsheviks S.G. Suvorov Academician P.L. Kapitsa already in 1944: |

"Imagining that you can overtake on secret trails is not real strength. If we choose this path of secret movement, we will never have faith in our own power, and we will not be able to convince others of it.

That is why they failed to "convince" that real power never existed, and secrecy not only prevented the embarrassment of Soviet minds, but also hid backwardness.

The young designer A.S. Yakovlev:

"In Germany, research work is done very well...

There, the development of each type of combat aircraft is extremely predetermined, and each designer has a

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the ability to work stably, as far as possible in experimental aircraft construction ...

How does a designer get a task to design a particular aircraft? The head of technical support of the Air Force in Germany speaks directly with the designer in the presence of one of the responsible executors of the Ministry of Aviation for this type of aircraft. These 2-3 people come to an agreement, determine the main data, the designer thinks it over, gives an answer, and no one else knows anything about the task. The car is considered secret until it goes into mass production.

How do we accept a prototype aircraft? It starts at Smushkevich, then it goes to the discussion in the Glavk, where 12 people sit, then at the People's Commissar, where 30 people discuss it, then it goes to the highest organization. As a result, by the time the designer is outlined the task for the aircraft, which he must do in a year, 60-70 people are aware of this, maybe even more. But the secrecy is kept incredible...

German designers have wind tunnels at their disposal, where all the main blowdowns are carried out, but there are also chimneys, where a number of practical issues can be checked. Then each designer of the pilot plant has at his disposal a strength laboratory and a vibration laboratory. We see that each designer tests the aircraft in parts and the aircraft as a whole at his plant, in the experimental shop. We have seen a number of parts that are tested for fatigue, for shaking in special machines, so that before the machine comes out, the characteristics of individual parts are already clear ...

Then the German designers are greatly helped by the exchange of experience. To our shame, we must confess that almost all of us work very closedly and there are no motives

to get us familiar with what many of the other constructors are doing. We often have to resolve issues that have already been resolved.

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scheny by others, you have to run into errors that other constructors suffered.

In Germany, there is a unified system of drawing facilities not only for aviation, but for the entire industry.

In our aviation industry, each plant has its own drawing system, each plant has its own numbering, its own system of tolerances, its own system of changes. As a result, it turns out that when a new machine is introduced into a series, the plant is forced to rework all the drawings. As a result, a colossal amount of time is spent, more errors accumulate than when building an experimental machine ...

German designers, in addition to the fact that they have the opportunity to get acquainted with the experience of other fields, they have one more help, very significant, this is technical literature, not to mention periodical literature. There are several scientific journals that publish all the modern material.

They also have wonderful books - reference books for designers. These are the most valuable things, where we have solutions to a number of elementary things over which we puzzle. We have this

No, and it's very sad.

The German designer is more independent than we are...

For all the time of designing, building the aircraft and conducting tests, he only once faced guardianship - upon presentation of the layout. Nobody touches him anymore.

And how are we doing it? Who does not meddle in the work of a constructor? Research Institute of the Air Force, UMS, Glavk, Inspectorate from the People's Commissariat ...

And everyone who does not come, everyone demands, everyone indicates, everyone obliges.

On January 26, 1940, the Politburo adopted a resolution "On the work of the People's Commissariat of the aviation industry", aimed at the speedy development of new

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samples of combat aircraft and reducing the time for the transition to mass production.

MM. Kaganovich was removed from his post and appointed as the new People's Commissar of the Secretary of the Gorky Regional Committee A.I. Shakhurin, and his deputy for experimental aircraft construction - A.S. Yakovlev. Following the reorganization of TsAGI, by the summer the Flight Research Institute was created with the latest equipment, including German, the publication of the handbook "Guide for Designers" began.

On the recommendations of a delegation that visited Germany, the People's Commissariat of Trade of the USSR issued an order for the purchase of German aircraft and equipment. The list included more than 100 titles. Numerous groups of specialists went to Germany in February-March 1940 to control the fulfillment of the government order. They included heads of the aviation industry and research institutes, plant directors, specialists in engines, weapons, instruments, radio equipment, test pilots, representatives of the Air Force. At the end of April, purchased planes piloted by German pilots began to land in Moscow. Among them were B{-109E and BE-110C fighters - five copies each, two LI-88 bombers and two Oo-215V, two Yo1!-156 liaison aircraft,

six record-breaking He-100U-8 fighters - a total of 36 machines of 12 types, most of them manufactured in 1939.

The dive bomber L1-87 did not interest the merchants: slow-moving, no armor, obscenely low bomb load, weak defensive armament, in general, a clearly outdated vehicle. This opinion seemed to be confirmed by the air battle over Britain, which revealed the vulnerability of the "lappeters" from the attacks of "spitfires" and "Hurricanes". Already six days after the start of the operation, the Luftwaffe command, in order to prevent the complete extermination of dive bombers, decided to stop using 1-87. And Non-111 is

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same junk. From August to September 1940, out of 600 bombers of this type, 395 were destroyed by the British. Given such heavy losses, the Germans stopped using the Heinkel as a day bomber, and from mid-September these aircraft made only single night raids.

German aircraft were sent for study at the Air Force Research Institute, the Flight Research Institute, TsAGI, CIAM and other organizations. Scrupulous study and testing of the arrived aviation equipment lasted from May to October. At the end of 1940, according to the results of tests, the head of the Air Force Research Institute, Brigadier A.I. Filin prepared a special report in which it was noted that German fighters significantly exceeded the I-16 in speed, but were inferior to the latest Soviet aircraft by 40-60 km/h. Initially, the concerns were caused by the Non-100, which was passed off by the Germans as a serial fighter, it squeezed out 650 km/h, but it quickly became clear that this record-breaking aircraft was a dummy, "not brought to a reliable state for combat work." As for the bombers, there was not much difference at all, and the new Soviet models, in comparison with the Germans, "possessed the best speed qualities." German engines and weapons did not arouse much interest.

It is another matter that the German aviation technology significantly surpassed the domestic one in terms of performance, was convenient for the service personnel and crew, easy to learn, distinguished by a well-thought-out design, a high degree of unification, saturation with instruments and automation. The report of the Research Institute of the Air Force noted:

"1. A characteristic feature of all German aircraft is that when constructing any type of aircraft, the designer pays a lot of attention to the maximum facilitation of the operation of the aircraft in the field and the convenience of performing combat missions. With this price

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Lew in the design of the aircraft provides a number of machines that facilitate the work of the pilot ...

2. The second characteristic feature of German aircraft is the widespread introduction of standard images: weapons, special equipment, propeller-motor units, aircraft parts and materials. These measures lead to a significant simplification of the design of experimental aircraft, their operation, the supply of spare parts and the training of the Air Force flight crew.

3. In addition, all German aircraft in service with the Air Force differ sharply from domestic ones in their large stability reserves, which also significantly increases flight safety, aircraft survivability and simplifies the piloting technique and mastering by low-skilled combat pilots.

In addition, the survivability of the aircraft in combat is significantly increased by the fact that the aircraft is equipped with fiber-protected tanks...)

It took 4 minutes to remove the propeller from #88. On the SB bomber, the same procedure took exactly an hour. Installing the engine on the Junkers took three hours, on the SB - ten, and on the DB-3 - all twelve. After getting acquainted with German aircraft, the military began to require the mandatory use of radio communication equipment on board and the adoption of measures to increase longitudinal stability.

But the main thing is not that, the main thing is that ours flew faster. Although, various useful things were not a sin to "copy". Almost 3,500 specialists got acquainted with the achievements of German designers. Even for a special contingent of "sharashkas" curators of the NKVD organized a sightseeing tour. So, Kerber recalls: "We are taken to inspect cars with a swastika on their keels. Here it is, military equipment that defeated Poland, Denmark, Norway, Holland, Belgium and France, but so far has broken its teeth in England. There are a lot of interesting things in airplanes that you can borrow without remorse." After

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detailed disassembly of the most liked samples, the leading plants of the industry were entrusted with the introduction of German experience into the Soviet aircraft industry.

The German delegations came to the Union on return visits, they, too, alternating excursions with banquets, were shown the best aircraft factories, the latest models of serial aircraft and engines.

Analyzing the reasons that prompted Hitler to such close military-technical cooperation with Stalin, A.S. Yakovlev explains: "The Hitlerites, blinded by their successes in conquering Europe, had no idea that the Russians could compete with them. They were so sure of their military and technical superiority that, revealing the secrets of their aviation, they only thought about how to impress us even more, shock our imagination and intimidate us." In addition, they tried to "intimidate" our engineers by displaying captured British aircraft. Unfortunately, Alexander Sergeevich does not report what "came into his head" himself when, in May 1941, as deputy people's commissar, he showed the "fascists" the secrets of Soviet aviation, however, he did not remember this. On the other hand, the German Air Force Attache in Moscow, Colonel Ashenbrenner, describing his visit to Plant No. 1 and airfields, where brand new sharp-nosed MiG fighters lined up in orderly lines, considered it necessary to literally quote the statement of designer A.I. Mikoyan: "We showed you what we have and what we do. And whoever tries to attack us will be destroyed

Of course, I.V. Stalin, who provided the Fuhrer with a reliable rear in the fight against Western democracies, was not afraid. Iosif Vissarionovich was upset not by the reports of General Filin, but by the "important conclusions" reached by the heads of trade and espionage delegations and Soviet intelligence.

People's Commissar A.I. Shakhurin reported shortly after his appointment that, taking into account the factories of the countries occupied and dependent on Germany, the German aviation industry

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laziness is "about twice as powerful as ours." Stalin was "somewhat surprised" and asked to submit his considerations in writing. Major General I.F. Petrov, upon returning from a business trip, reported that, according to his calculations, the Germans were capable of producing 70-80 aircraft per day. Military analysts firmly assured: yes, they are not just capable, they are already riveting 2000 vehicles monthly. In reality, the aviation industry of the belligerent Reich in 1939 produced an average of 23 aircraft per day, in 1940 - 27, in 1941 - 30.

(The story is reminiscent of an anecdote on a visit to Germany in August 1938 by the Chief of Staff of the French Air Force, General Vuillemin, to whom the Germans showed the latest heavy fighter BE-110:

"The delegation of the headquarters of the French Air Force was brought to the Messerschmitt A.G. plant. After a spectacular demonstration of the firepower of the new "hunter", General Wuyemin was shown a "part" of the assembly line and "newly produced" BE-110s, which took off at regular intervals. This spectacular demonstration of "mass production" was nothing more than a well-planned hoax. The aircraft taking off at the correct intervals were pre-production B+(-1108B-0 and several BE-1108B-1, which were specially assembled at the plant in Augsburg. After takeoff, they landed outside of visual visibility, transported back to take to the air again in front of the guests.

Vuyeming was quite impressed, but only four B+(-1108B-1s had actually been produced by that time. The production of BE-110V during 1938 barely reached two cars a week ...").

Comrade Stalin was completely upset and ordered to review all plans and bring the production of aircraft to the German standard, and by the end of 1940 to reach the level of production of 50 aircraft per day.

The rush began.

Already in February 1940, the Defense Committee increased the semi-annual program for the production of aircraft and aviamoto

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moat by almost 40%. Without waiting for the completion of the construction of new specialized plants, 60 enterprises from other sectors of the national economy were transferred to the People's Commissariat of the aviation industry.

A.I. Shakhurin writes: "According to the decision of the party and the government, the regions and cities handed over to us many operating factories, and the factories are large, good, where it was possible to deploy aircraft production. But there were factories and small ones, which were far removed from aviation technology. It happened that they simply gave away disturbances: in one of the cities - the building of a ballet school, in another - a factory of musical instruments, in the third - an enterprise for the manufacture of typewriters, in the fourth - a garage, etc. and so on. And one of the leaders of the Bolshoi Theater, with whom I once happened to meet, jokingly remarked: "Listen, you take everything, won't you take the Bolshoi Theater too? ..

We took everything or almost everything. For example, almost all aluminum, magnesium, cobalt, alloyed steels, the absolute majority of alloyed pipes, etc. were taken away. Here we were monopolists: we were given what was not given to anyone. Much was still lacking in the country. Some industries were just beginning to develop. But for aviation they were not stingy.

The aircraft factories worked in three shifts.

In June, the Presidium of the Supreme Soviet of the USSR adopted a decree on the transition to an eight-hour working day, a seven-day working week and a ban on unauthorized leaving of workers and employees from enterprises and institutions. There were no more weekends. The "victorious proletarian" was attached to the machine for life. Being late for work more than 20 minutes was now equated with absenteeism, for which the worker was no longer administrative, but criminally liable. In just six months, by decree of June 26, over two million people were convicted in the country! As soon as the Bolsheviks once again became preoccupied with the "security of the country", food disappeared in the country, and bread lines lined up in the cities again. revived

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a rationed food distribution rationing system in the form of closed trade points created to provide strategic industries, transport and the military. Thus, workers in the aviation industry in 1940 received from 300 to 700 grams of meat, 1.5 kilograms of fish, and 300 grams of butter per family per month.

On July 13, the People's Commissar of Defense and the Chief of the General Staff proposed to the government that the aviation industry be transferred to a wartime situation. So who is against it! No barriers to patriots! July 16 at the Deputy Chairman of the Council of People's Commissars N.A. Voznesensky, a conference was held on the issues of mobilization deployment of the aviation industry, at which the military proposed to increase the production capacity in 1941 to 36,000 combat aircraft per year. And in this matter the Politburo unreservedly accepted the timely initiative. True, then they thought, figured out the possibilities, and on December 7 the application was halved, approving the production program for 1941 in the amount of 16,530 combat vehicles - 6,070 bombers, 8,510 fighters, 1,750 attack aircraft, 200 reconnaissance aircraft. Plus 3620 training and transport aircraft. For the sake of fulfilling this program, the NKAP was allowed to stop repairing aircraft and engines that are in service with the Air Force - they will manage on their own.

In November 1940, the Politburo ordered the directors of aircraft and aircraft engine factories to report daily to the Central Committee on the number of products produced. People's commissars, directors of enterprises and heads of transport departments were personally responsible for fulfilling orders and transporting goods for the aviation industry on time.

It was decided to drastically reduce the testing time of experimental machines. In a number of cases, the aircraft were launched into mass production even before the end of the tests. The doubling of the number of factories led to an influx of unskilled labor. Monstrous production plans led to simplification and

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technology disruption. The "gap between the ability to design an aircraft well and to produce it very poorly and for a long time", noted by Belov, only increased, or rather, now they were doing it badly, but quickly. Therefore, the point is not that the Germans had better planes - the Germans made them better, without Stakhanovism and National Socialist competitions. And they didn't have pests. In the dungeons of the Gestapo they did not design aircraft. And the Hitlerite generals knew from somewhere "that from the moment the drawing up of the drawings of the aircraft to the adoption of it into service was required, for the most part, from 4 to 5 years, and the corresponding period for aircraft engines was 5-6 years."

In 1940, 45 models of new machines were rolled out of the design bureaus, 12 of them were put into service. What did the "Soviet Motherland" get in the end, which "days and nights at the open-hearth furnaces" strained in the wartime regime?

In 1939, the results of the competition for the best reconnaissance and short-range bomber of the Ivanov brand were summed up. Aircraft D.P. Grigorovich was not completed due to the untimely death of the designer, just like the "Ivanov" I.G. Neman - in view of "prison factors". Machine N.N. Polikarpova successfully passed the tests, but for unknown reasons was not put into service, and his design bureau was deprived of funding. Brigade P.O. Sukhoi built an all-metal two-seat monoplane ANT-5\$1, which was an almost exact copy of Polikarpov's aircraft, with the same and even slightly worse flight characteristics and weaker armament. Nevertheless, Pavel Osipovich was offered to continue his work: to install a more powerful and high-altitude M-87 (930 hp) instead of the M-62 engine and switch to a mixed design (metal wings, and a wooden fuselage).

On state tests, the aircraft with a take-off weight of 4030 kg showed a speed of 375 km/h
land and

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470 km/h at an altitude of 5600 m. Armament consisted of six ShKAS machine guns: two in the wing consoles, one on the MV-5 turret in the rear turret and one in the lower hatch installation. Up to 400 kg of small bombs could be placed on the internal suspension, two 250 kg bombs on the external. Pilot B.N. Pokrovsky wrote in his report that the plane "is

an example of a well-thought-out cultural machine with high speeds, good rate of climb, good visibility, and sensitivity to control. Flights on this aircraft leave a pleasant impression of the car."

At the end of March 1939, a decision was issued to launch the aircraft in a series called BB-1 at the Kharkov aircraft building plant and the Saratov combine. Sukhoi was appointed chief designer of Pilot Plant No. 289. He was instructed to modify the aircraft for the M-88 engine with a two-speed supercharger, increase the speed of the machine to 500 km/h, and create an armored attack bomber ShB on its basis.

In 1940, BB-1 was produced with the M-88B engine with a power of 1100 hp. and three-bladed propeller. The aircraft was named Su-2. Its speed increased by 50 km / h, the flight range was 1000 km. Instead of four wing machine guns, two were left and the hatch ShKAS was removed. The pilot was protected by a 9 mm armored back. Military pilots noted that the aircraft was simple and safe to operate, easy to master, easy to repair, and took off freely from a dirt strip with a maximum bomb load. In all respects, it outperformed foreign machines of a similar concept - the Polish R-23V "Karas" and the British "Battle".

However, the introduction of the aircraft into the series was extremely slow, and until the end of 1939, Soviet aviation did not receive a single "extremely foamy" BB-1 bomber. The flagships of the Soviet aircraft industry were the four largest, provided with the most modern equipment and personnel, factories - No. 1, 18, 21, 22, but, despite all efforts, none of them Sukhoi

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tily." A new NKAP order dated February 15, 1940, ordered to stop all preparatory work at the Sarcombine and expand the construction of short-range bombers at the Taganrog plant named after Dimitrov No. 31, which previously specialized in the production of flying boats, and plant No. 207 in Dolgoprudny, engaged in combat airships. It took another year to reconstruct the last two plants, install equipment, develop technology, and establish cooperation with other enterprises. Then plant number-31 was once again reoriented to the production of other products. It took a lot of time to fine-tune the propeller group: the M-88 engine shook, bounced, smoked, spat oil and jammed, which made vigilant comrades think that the "sabotage" at the engine plant No. 29 had not been completely uprooted.

As a result, the massive supply of Su-2s to combat units began only in January 1941 of the year, it was planned to produce 1150 vehicles in a year (as of 1 June, according to the reports of factories, military representatives accepted 413 dryers, eight short-range bomber aviation regiments managed to master them). Moreover, the engine continued to act up, and "castor oil thrown out of the engine prompter splashed the lower transparent part of the navigator's cabin and the OPB-jm sight, preventing the bomber from being aimed at the target." With the outbreak of war, a quartet of wing machine guns and a hatch installation with an MV-2 turret were restored on aircraft, the navigator's place was covered with sheets of cemented armor. True, for this it was necessary to dismantle the radio semi-compass, the radio station and reduce the bomb load to 400 kg.

In general, the airplane was not bad as an engineering design, and quite combat-ready in capable hands. But the realities of the war have shown that a single-engine, horizontal mini-bomber, to put it mildly, has no value. During the Polish campaign, 120 slow-moving "crucians", operating mainly at low altitudes, demonstrated their defenselessness against the attacks of "Messers" and vulnerability from ground fire.

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air defense. For two weeks of September battles, they were knocked out by 90%. The participation in the battle for France of two hundred Battle aircraft, much more advanced than the P-23, ended just as sadly.

"Then it quickly became clear," writes V.B. Shavrov, - that this type of reconnaissance and short-range bomber has already become obsolete, fundamentally outdated and no longer needed. His flight data and weapons no longer met the demands of the war. Its functions have been universally and firmly transferred to twin-engine high-speed aircraft ... "

Moreover, the obsolete and "not meeting the needs" Su-2 was costly for the country: 845 kg of duralumin, 440 kg of steel were spent on the production of one aircraft, and it cost more than twice as much as the SB bomber.

In 1942, having produced 877 copies, the Su-2 was removed from the assembly line.

At the beginning of 1939, the star of the 33-year-old aviation designer A.S. Yakovlev. Prior to that, his design bureau was engaged exclusively in light-engine aviation — sports, passenger, mail, and training aircraft. Alexander Sergeevich knew how to present the product with a face, his designs were distinguished by the thoroughness of the finish, and the line of nineteen machines created by him was held under the brand name "AIR" - in honor of the Chairman of the Council of People's Commissars of the USSR A.I. Rykov, however, none of them got into the mass series. "Awkward" happened when Rykov was exposed and shot as a vile hireling of world imperialism.

In 1938, the Yakovlev Design Bureau, on its own initiative, "bravely set out to build an original" twin-engine high-speed multi-purpose aircraft with M-103 engines. With an emphasis on the word "high-speed" - at least 600 km / h. To achieve this goal, the fuselage was compressed as much as possible, the all-wood wings were made inseparable, and the bottoms of the gas tanks served simultaneously as the lower part of the wing, oil coolers

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tili at the rear of the engine nacelles. The navigator's cockpit was fitted into the fuselage contour. With a design flight weight of 4000 kg, the specific load on the wing was 148 kg / sq. m. In January 1939, when the prototype of the "Aircraft 22" was brought to factory tests, the machine developed a phenomenal speed of 560 km/h. The report of the Air Force Research Institute emphasized:

"Aircraft 22 is cheap, has good production performance, its technology, like that of wood, is simple, can be easily mastered... In terms of the culture of finishing the outer surface, the production performance of individual components and assemblies, aircraft 22 can serve as an example for the domestic aviation industry."

In general, the military really liked the beautiful, swift, painted in red and white, sparkling polished aircraft. The outstanding achievement of the young Soviet designer was reported to the highest authorities. April 27 A.S. Yakovlev was invited to the Kremlin, treated kindly, issued the Stalin Prize and a personal car "ZIS". Alexander Sergeevich very colorfully described his first meeting with the leaders and the lecture he gave for dummies along the way: "Stalin, Molotov and Voroshilov were very interested in my BB car and everyone asked how it was possible with the same engines and the same bomb load that uu sat, get a speed greater than the sb speed. I explained that it's all about aerodynamics, that the SB was designed 5 years ago, and science has advanced a lot during this time. In addition, we managed to make our bomber much easier than the SB. Stalin walked around the office, was surprised and said: "Miracles, just miracles, this is a revolution in aviation."

Immediately after the conversation in the Kremlin, the Yakovlev Design Bureau began transferring the working drawings to Plant No. 1 for the preparation of mass production. Officially, "Aircraft 22" was put into series after state tests in accordance with the decision of the Defense Committee of June 20, 1939

of the year.

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The "miracles of aerodynamics" ended as soon as they tried to make a mass bomber from a machine of unknown purpose, capable of replacing the Tupolev SB. Or at

worst of all, scout. The essence of the problem was that the supposedly combat aircraft, to applause, passed all the tests without armament, bomb load, photographic equipment, navigation devices, and even without an internal intercom. The customer, wanting to get something useful, suggested moving the navigator's cockpit forward so that he could at least "show" something to the pilot with his hand: like "Messer" on the tail" or "the target is under us". The bomb bay, on the contrary, was asked to be moved back, and the fuselage gas tanks were also removed so that four 100-kg bombs could fit inside the fuselage. Two more bombs were planned to be carried on an external sling. I would like to install defensive armament at the same time, provide acceptable firing angles for the upper firing point, find a place for a radio station and some other equipment. In sum, these requirements meant a reconfiguration of the machine, an increase in its mass, a deterioration in stability and an inevitable decrease in flight performance.

The first serial short-range bomber BB-22 (aka Yak-2) plant number-1! was able to present only in March 1940. The aircraft's flight weight increased to 5,660 kg, the ceiling dropped from 10,000 to 8,900 m, and the maximum speed at an altitude of 5,000 m to 515 km/h, again without bomb load. The specific load on the wing increased to 192.5 kg/sq.m. Small arms consisted of a "stern" machine gun on a retractable pivot mount. Two FAB-50 or FAB-100, or 20 fragmentation bombs were suspended in the bomb bay; under the wing there were two holders for the FAB-50 or FAB-100. Without bombs on an external sling, the BB-22 developed 478 km / h (moreover, in this version, more than 200 kg could not be taken into the bomb bay, otherwise the aircraft would tip over "on its back" due to a shift in the center of gravity). And in the presence of 400 kg "in the belly" and 200 kg under the wings (for balance), the plane squeezed no more than 445 km / h - what

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"real" SB bomber. For parade shows and government commissions, the airframe was carefully puttied before painting and polished after it, gaining additional kilometers per hour. In the machines of serial execution, the wind was walking between the numerous slots, noticeably worsening the aerodynamics.

In October 1940, the production of the modernized BB-22 bis (Yak-4) with M-105 engines and outboard gas tanks began at the Tushino Plant No.-81. Flight characteristics improved somewhat, but takeoff weight and wing loading increased even more. The pilots noted that with the engines turned off, "the car plans with a stone." Due to the peculiarities of alignment, military pilots were taught first to drop bombs from the internal suspension, and only then from the external one. The navigator, squeezed between the wings, could only observe upward without hindrance.

Nevertheless, the order for 1941 provided for the production of 1300 Yakovlev bombers. In addition, they tried to make a dive bomber, a reconnaissance aircraft, an escort fighter out of the aircraft, but none of these ideas came to fruition.

In February 1941, the BB-22 was taken out of production, stopping at 201 copies. About 180 vehicles, which were in service with three aviation regiments, took part in the hostilities, all of them were lost a month and a half after the start of the war.

V.S. On May 19, 1939, Ilyushin rolled out a modification of the DB-3 long-range bomber with M-88 engines for factory testing. The very first flights showed that due to numerous defects the propeller unit was unsuitable for operation. Therefore, an aircraft with M-87B engines and lower than expected performance was submitted for state tests. With a takeoff weight of 7660 kg with 1000 kg of bombs at an altitude of 5400 m, it was possible to achieve a speed of 445 km/h, and the maximum range was 3500 km. The machine, as already mentioned, has become more technologically advanced, more convenient to operate.

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and noticeably "survivable". In addition to the armored back of the pilot's seat, the gunner's seat was also armored. Defensive weapons have become somewhat more effective (although UltraShkas machine guns

did not receive distribution: they crumbled from their own rate of fire). The upper firing mount was equipped with a shielded MV-3 turret designed by G.M. Mozharovsky and I.V. Venevidov. The turret cap was equipped with aerodynamic compensators that balance the action of the air flow and significantly reduce the effort required to rotate the turret. The lower installation of the MV-2 had a retractable machine gun with a periscope sight, thanks to which the shooter got an overview of the lower part of the rear hemisphere. True, the shooter still remained in a "single copy" (the second one was introduced to the staff in the second half of 1941). For quite a long time, the Technical Council of the NKAP argued about what type of anti-icing system it is preferable to use - the chemical one of Comrade Feigelson or the thermal one of Comrade Zuev. As a result, they agreed on the one that copied the SL-88.

The bomber became known as DB-3f (IL-4).

The directors of factories No. 39 and No. 18, two months before the start of state tests, received an order to restructure production for technologically new machines and already in the fourth quarter of 1939 to build 870 DB-3s with engines M-87 and M-88, and from January 1940, completely switch to the production of modified vehicles. The launch of a structurally unfinished bomber with capricious "self-destructive" engines into mass production led to the fact that for six months the aviation industry produced aircraft that were practically unsuitable for use. Despite all the tricks of the production workers, the military categorically did not want to accept the "F" machine, and on May 7, 1940, the head of the Air Force ordered to stop registration and payment for aircraft made by factories No.

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complete." The next day, an order of the NKAP broke out, which, in particular, stated:

"The completely intolerable situation with the implementation of the plan, and, first of all, at the leading plant No. 39, was the result of an irresponsible attitude towards the fulfillment of the state task on the part of the director of the plant, comrade. Zhuravlev and chief designer comrade. Ilyushin. Having handed over the unfinished machine to serial production, the chief designer comrade. Ilyushin extended the refinement of the machine for a very long time, and even at the present time there is no confidence in its complete completion, since the management of plant No. 39 and the chief designer comrade. Ilyushin still does not have a well-thought-out clear plan for fine-tuning the DB-3F aircraft. The Collegium especially noted the failure to fulfill the task set by the government in terms of speeds. At the same time, from the side of the chief designer Comrade. Ilyushin and director of the plant comrade. Zhuravlev, no proper measures were taken to speed up the transfer of the DB-3F aircraft for state tests.

At the same time, People's Commissar A.I. Shakhurin wrote a report to I.V. Stalin, promising to correct all the shortcomings and submit an "improved model" of the bomber for state tests. Iosif Vissarionovich ordered the People's Commissariat of Defense to temporarily accept aircraft "with reduced data" from the factories. However, the authority of S.V. Ilyushin, as Chief Designer, fell in the eyes of the party and military generals. In July 1940, a decision was made to launch a long-range bomber V.G. Ermolaev, in August - about stopping the production of M-88 engines. The winter war revealed a whole bunch of "childhood illnesses". Pilots Baidukov and Yumashev wrote to Shakhurin:

"During the participation in hostilities on the North-Western Front, the following shortcomings were noticed in the DB-3s M-87 aircraft, which we operated:

The M-87B motor is full (destruction of the gearbox in 17 hours, jamming of the shaft in 29 hours, burnout of the piston in 20 hours, sticking of the gas sector due to freezing of the radiator damper, clogged

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taxiing suction pipe, blinds icing, poor quality spark plugs, altimeters lying, oil coolers freezing, engine overheating on the ground and hypothermia in cruising

speed).

For DB-3 aircraft: 1. Rear centering (longitudinal instability); 2. Gasoline flows from tank to tank, which is unpleasant in a blind flight; 3. Petrol tanks of the same group have different output; 4. Skis freeze a lot, you need 8-10 people. pump and afterburner when stragging; 5. Gyroscopes from Venturi tubes work very sluggishly even at 220-240 km/h; 6. Venturi tubes break down during icing, and if the autopilot fails, blind flight is impossible; 7. Devices are located badly; 8. Cabin lighting does not allow to see some devices; 9. When the lighting is fully turned on, it reflects on the windshield; 10. The levers of the landing gear, afterburner and propeller are set apart; 11. The afterburner and light step levers are badly locked; 12. Propeller anti-icers are capricious, distracting the navigator who is rocking; 13. All groups of gas tanks are not provided with neutral gas; 14. During icing, ice breaks through the glass of the navigator's cabin; 15. During icing, the navigational cabin freezes so much that the curtains jam, and the machine gun does not fire; 16. Tail emplacement does not provide protection; 17. Since they take 4 ilena of the crew, an additional oxygen device and a telephone are needed.

Excessive rear centering of the DB-Zf made the aircraft unstable and difficult to pilot, the exhaust gases of the engines entered the cockpit, the bomb bay doors opened by themselves on turns, the OPB-1M sight prevented the navigator from firing from the lower machine gun, the vast majority of aircraft were produced without autopilot. lot, radio altimeter and radio compass. Hero of the Soviet Union A.I. The youth recalled:

"There is no autopilot on the plane, and by its nature, the IL-4 is unstable, every second it strives to fall into a roll, go off course, lift or lower its nose. You need to constantly turn the steering wheel ... The hum of motors, the monotonous movements of the steering wheel to the right, then to the left, towards yourself, away from you

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rocking, downright lulling. And the pilot seems to be sitting with his eyes open, but he does not see the instruments. His consciousness is switched off for a moment. Sleeping man. This dream lasts a second, maybe two, but then, instantly waking up, it seems to you: you slept for an eternity! And so the hands begin to unconsciously turn the steering wheel, and not always in the right direction... Everyone knew this well, but they could not withstand the constant stress during long flights. It was beyond physical strength. As far as the attack aircraft was good, so our bomber, to put it mildly, was not very good.

The act, based on the results of the next state tests, which took place in September-October 1940, stated: "The aircraft is lower than Yu-88, Do-215 and North American, and reliability is also lower.

In the end, the fundamental question arose about the combat value of the bomber S.V. Ilyushin and replacing it with something more decent. But it turned out that there was nothing to choose from. In November, the production of the finished M-88B engines was resumed, they began to be equipped with all serial DB-Zf. Aircraft defects were slowly, but eliminated. It became heavier by almost a ton, so the speed increased slightly and amounted to about 400 km/h at an altitude of 4500 m and 335 km/h at the ground; ceiling - 10,000 m, flight range - 3300 km, maximum bomb load - 2500 kg (1000 kg - on the internal sling). In terms of the set of parameters, the aircraft was not inferior to most foreign analogues created in the second half of the 1930s, it had a high power-to-weight ratio and an excellent rate of climb. Another trump card of Ilyushin was the high manufacturability of the machine, thanks to which the DB-3f/IL-4 was produced until the end of the Second World War.

Before the war, the DB-3f tried to compete with the "ultra-long" DB-240 (Er-2), a conversion of the Stal-7 twin-engine passenger aircraft of the RL design into a bomb carrier. Bartini with reverse gull wing. After in January 1938 the "fascist spy

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on" was arrested, they just wanted to burn the car, but then changed their minds. On July 29, 1939, by resolution of the Defense Committee No. 227, the terms of reference for a bomber with a maximum speed of 500 km / h, with a flight range of 5000 km were approved in order to be able to bomb Malta or the very lair of the "warmongers" - London - depending on the circumstances. Four 250 kg bombs or the same number of 500 kg land mines were to be placed in the cargo compartment. While only ten FAB-100 or FAB-50 bombs could be hung in the silt fuselage.

The work was assigned to OKB-240 under the leadership of V.G. Ermolaev, organized in the system of the Civil Air Fleet. He had to turn the mixed design into a metal one, retaining the general scheme, dimensions, and other parameters, and present the first copy of the machine no later than April 10, 1940. It was planned to achieve outstanding flight data by installing two M-106 engines with an HP 1350 power. However, the M-106 failed to reach the required deadline. Serious operational defects interfered: shaking in transient operating modes, detonation of fuel, leaded candles, smoke, oil ejection, and so on, and so on, and so on (with M-106, which at first had high hopes, they suffered to the end 1942, then they waved their hand). The designers had to be content with the less profitable M-105 engine with a takeoff power of 1100 hp. and an altitude of 4000 m.

The first flight of the DB-240 took place on May 14, 1940. The aircraft demonstrated good flight performance, but it did not quite reach the cherished 500 km/h: the "empty" bomber with a take-off weight of 7076 kg developed a maximum flight speed of 473 km/h. Small arms consisted of bow and hatch mounts with 7.62 mm ShKAS machine guns and an upper turret with a 12.7 mm Berezin machine gun. Bombing armament included two external beams with the possibility of hanging bombs of caliber from 100 to 1000 kg. Inside the bomb bay was mounted

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a pair of cluster bomb racks designed for hanging four FAB-250 or FAB-500 bombs, as well as four bomb racks for hanging 12 FAB-50 or FAB-100 bombs. The maximum bomb load is 4000 kg (two FAB-1000s on the outside and four FAB-500s on the internal sling). Crew - 4 people.

Based on the peppy reports of Ermolaev and the head of the Main Directorate of the Civil Air Fleet, V.S. Molokov, relying on, to put it mildly, slightly rigged reports, without waiting for state tests (they didn't even wait for the end of factory tests), the government decided to launch mass production of DB-240 at the Voronezh aircraft plant No. 18. The Decree of the Defense Committee of May 29, 1940 ordered the production of 70 bombers in the same year, and the construction of 800 aircraft in 1941.

After record-breaking flights to the maximum range, the DB-240 at the end of September 1940 entered the tests at the Air Force Research Institute, during which the military realized that they were slipping not quite what was ordered (which is not surprising, if you remember that more powerful motors were included in the project). In terms of flight speed, the aircraft turned out to be no better than the DB-3Zf. The ceiling of the "Era" was 7700 m, the Ailyushin machine easily climbed much higher. The climb time of 5000 m exceeded 30 minutes, for the IL-4 - 17.5 minutes. Only the flight range and the capacity of the bomb bay singled out the Yermolaevsky bomber for the better; however, with a full bomb and fuel load, it could hardly get off the ground. Moreover, for the take-off of a 13-ton aircraft, a concrete runway with a length of at least 1200 m was required. control, unreliable operation of brakes and bomb releasers, discrepancy between the size of the wheels of the main landing gear and the flight weight of the aircraft, no

broken tread on gas tanks, overheating of oil and water, cracked exhaust manifolds. Due to the lack of large-caliber BT machine guns, another ShKAS had to be installed in the upper mount. Meanwhile, Plant No. 18, overcoming difficulties and "bottlenecks", mastered the production of a series, rolling out machines unsuitable for operation from the shops.

In November 1940, V.G. Ermolaev received an order to re-equip his bomber for AM-35A, AM-37 liquid-cooled engines and M-40F aviation diesels. Urgently. This was followed by the decision of the government to stop the production of Yer-2 with M-105 engines. The machines that were already ready and still "on the slipway" were ordered, after eliminating the defects, aggravated by the "extremely careless and hasty assembly of the aircraft", to be transferred to the troops with a take-off weight limit of 12,000 kg. However, months passed, and it was not possible to push the "eras" from the territory of the plant into the troops. The first copies of the Air Force were accepted only in June 1941, the seventieth - in September. By the beginning of the war, none of the "new type" bombers had entered service with combat units. In the end, two DBA regiments were formed, equipped at the beginning of August with 60 vehicles. Their assessment by crew members can be judged from the report of the commissar of the 420th regiment, senior political officer Dokalenko: "The flight crew expresses a certain mood regarding the reliability of the materiel. Pilots and navigators say that it would be good to transfer them to another type of aviation. The flight crew can be understood: as of August 13, 1941, two brand new aircraft crashed, six more burned out in the air due to spontaneous combustion of engines, two crews died in full force, ten people were burned. By this time, the Soviet leadership had completely lost interest in the ultra-long-range bomber. Design Bureau Ermolaev, wandering in the evacuation from factory to factory, did not manage to bring his car to a state suitable for a mass series.

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With the AM-37 engine, five aircraft were produced, with the AM-35 - only one. Starting from 1944, Plant No. 39, which moved to Irkutsk, produced small batches of five-seat "eras" with ACH-Z30B diesel engines. During the entire war, combat units of long-range aviation received about two hundred "unusable aircraft" Yer-2.

After the arrest of Tupolev and Petlyakov, I.N. I won't. It was clear to the entire Soviet Air Force that the plane was damn good, and it was planned to have 250 of these machines in service in 1940. Almost simultaneously, it was decided to install new A.A. engines on the aircraft instead of the AM-34FRN. Mikulin AM-35 with 1350 hp takeoff power. An increase in engine performance was achieved through the use of a centrifugal supercharger with rotary blades and four carburetors instead of one.

Since 1939, TB-7 began to be mass-produced at plant No. 124. Literally immediately after the assembly of the first "hull", it turned out that the production of the "highlight" of the project, the ACN-2 central pressurization unit, was not established anywhere. This circumstance put an end to the idea of a high-altitude strategic bomber.

SACN produced only four aircraft and twelve without it. The flight range of a 32-ton machine reached 4,700 km, the maximum bomb load was 4,000 kg, and the speed at an altitude of 6,400 was 443 km/h. The aircraft had exceptionally powerful armament: two turrets with a ShVAK cannon, two shooting points with a Berezin machine gun in the tail section of the engine nacelles, a turret with two ShKAS machine guns for firing forward. There were also designed gas tanks, armored plates and armored backs protecting pilots and gunners. The maximum flight altitude of the TB-7 (without ACN-2) was 9300 meters, while the BE-109E climbed 10,500 meters and flew much faster.

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In this regard, the question naturally arose whether the country needs an expensive bomb carrier that is not able to independently overcome the air defense zone, and there is still no long-range fighter available. There was also this opinion:

"Some prominent leaders of the country considered it a mistake to create high-speed heavy bombers that would be able to strike at enemy military plants deep in the rear. In their opinion, this could quarrel the USSR with the international proletariat, which, in the event of war, must necessarily defend the world's first state of workers and peasants.

In May 1940, the wise Soviet government decided to continue the production of TB-7 with the latest 12-cylinder aviation diesel engines M-30 and M-40. Both motors were descended from the AN-1, designed by A.D. Charomsky, had the same dimensions, four two-stage turbochargers each, did not have driven superchargers, had similar technical characteristics and were generally very similar. Only the M-30 was made in a "sharashka" at the plant No. 82 by convict A.D. Charomsky, and M-40 - in the wild, at the Kirov Plant, V.M. Yakovlev. The disadvantages of these motors were also the same: they consumed oil in buckets, vibrated strongly, at an altitude of more than 4000 m they suddenly "self-switched off" and did not want to turn on again, bearings and other "extra parts" sometimes spilled out of the turbochargers. Approximately every third diesel engine failed without serving even 10 hours. These problems surfaced in the troops already in the process of operation, they had to change diesel engines back to AM-33A carburetors.

By this time, Western designers, who were the first to develop high-speed diesel engines and put them on aircraft, realized for themselves the futility of this direction: with existing materials, such engines will always be either overweight or have an insufficient resource. Only in the USSR, albeit in small batches, they continued to produce expensive tallol.

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As a result, there was nothing to replace the TB-3. The decision to remove the clumsy slug from service was never implemented. On the contrary, in February 1941, a decree "On the reorganization of the aviation forces of the Red Army" was issued, which ordered the formation of five more TB-3 regiments, which were supposed to be used both as bombers and as military transport aircraft.

Aircraft TB-7 (Pe-8) produced only 79 copies. By the beginning of the war, exactly seven bombers had entered the troops, their number at the front never exceeded a dozen machines, they were used at night, they could not play a special role; in 1941, they extremely unsuccessfully took part in symbolic raids on Berlin - it was then that the defects of the power plant, which were turned a blind eye during tests, backfired, in 1944 they were considered unsuitable for the same task due to vulnerability to modern air defense systems. When Stalin needed a carrier for a nuclear bomb, he ordered to exactly "copy" the American "Superfortress".

Thus, the main Soviet long-range bomber and naval torpedo bomber throughout the war was and remained the DB-3/IL-4, until 1945 it was distributed in the amount of 6883 pieces.

The issue of creating a dive bomber in the USSR was considered as early as 1934, but it did not come to fruition right away. At the beginning of 1936, N.N. Polikarpov, on his own initiative, began to develop a high-speed multi-purpose aircraft (SVB, MPI-1, VIT-1) with two M-103 engines, capable of conducting reconnaissance and air combat, dive bombing and performing the function of an "air tank destroyer". The scheme is an all-metal low-wing aircraft, designed for a twelvefold overload. The armament consisted of two "onboard" 37-mm cannons K-37 Shpitalny in the center section, one 20-mm ShVAK cannon in the nose of the fuselage

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zha, one ShKAS on the rear turret, two 500-kg bombs on the outside and up to 600 kg on the inside. There was no booking. The report noted:

"To judge the combat power of an aircraft, it is enough to say that, for example, the fire power of automatic weapons located in the nose of this aircraft is more than ten times higher than the power of fire of the most powerful fighter in service with our Air Force ... Up to the present At that time, neither in the USSR nor in foreign armies did we have a means of combat intended for active action against large tank formations. This task is solved by the air tank destroyer (VIT) proposed by us.

On tests of the two-seat VIT-1, which took place in October 1937, a speed of 494 km / h and a flight range of 1000 km were achieved. As a result, it was decided to put more powerful engines on the aircraft and make some changes to the design.

VIT-2, tested in the fall of 1938, differed from the "daddy" in a spaced tail, some changes in contours, M-105 engines, new propellers and the presence of a third crew member. The maximum speed reached 513 km / h at an altitude of 4500 m and 446 km / h at the ground. From a dive, bombs could only be dropped from an external sling. "The flight qualities were outstanding", in terms of piloting technique the aircraft was accessible to an average pilot, and, in general, there was nothing like it in the USSR at that time. The overall impression was spoiled only by the low reliability of the "raw" M-105 engine, its fine-tuning in the bureau of V.Ya. Klimov dragged on for a year and a half. In August 1939, it was decided to put the VIT-2 into production at factory No. 22 in Fili as a dive bomber variant, which was given the name SPB. The first copy was by the beginning of 1940. He showed a speed of 520 km / h. The armament turned out to be not so intimidating ("anti-tank" faded into the background): a stern UB machine gun and a ShKAS machine gun in the navigator's cockpit, 800 kg of bombs in the fuselage and 700 kg outside.

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On April 14, 1940, a draft design of a single-engine single-seat dive bomber (OPB) with an M-90 star-shaped engine was presented to the customer by OKB S.A. Kocherigin, on May 20, a model was presented, which was approved by an authoritative commission. The dive bomber was a single-seat low-wing mixed design with a reverse gull wing. A bomb weighing 500 kg was hidden in the fuselage and dropped using a parallelogram mechanism that brought it out of the propeller disk. There were two holders under the wing, which provided the suspension of two bombs of the FAB-250 type. Small arms consisted of four synchronous machine guns: two BS and two ShKAS. With an aircraft flight weight of 3,800 kg, it was supposed to achieve a speed of 600 km/h at an altitude of 7,000 m, and a maximum range of 1,100 km. OPB Kocherigin is strikingly reminiscent of an improved version of the German "thing" that managed to become famous. Yes, and the parallelogram mechanism was copied from it. In conclusion on the project, the head of the GUAS KA division commander P.A. Alekseev noted: "The experience of recent combat operations clearly confirms the need to have a dive bomber of this class in the Air Force, since this aircraft combines high speed with the possibility of aimed bombing at fortified points with bombs of great destructive power som 500 kg, allowing bomb armament of 700 kg in the reloading version. According to its scheme and design, the OPB aircraft is close to the family of fighter aircraft, and therefore can be used after the end of the main combat mission of bombing as an air combat aircraft."

Despite the great interest on the part of the Air Force, work on the OPB unfolded slowly, mainly due to the lack of the M-90 engine and the workload of plant No. 156, where the team of S.A. Kocherigin, priority orders of the NKVD. The designer redesigned his project for the AM-37 engine, but it was discontinued. All this bodyaga dragged on until the middle of 1942, after which

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Kocherigin was pushed to the post of editor-in-chief of the BNT NKAP.

The Soviet analogue of the "thing" never appeared. However, there was plenty to choose from...

Work on improving the SB bomber, after the defeat of the Tupolev Design Bureau, was entrusted to A.A. Arkhangelsk. He had to carry out a deep modernization of the aircraft in order to teach it to dive and fly at a speed of 500 km/h, or better, 600 km/h.

In October 1940, factory tests of an experimental bomber SB-RK (Ar-2) began with M-105R engines (takeoff power 1100 hp) and "ennobled" aerodynamics. It was equipped with an overload limiter, a dive recovery automat, special PB-3 bomb racks, which ensured the safe exit of an aerial bomb from the bomb bay, and lattice aerodynamic brakes "of the L-88 type". The aircraft, with a normal flight weight of 6650 kg at an altitude of 4700 m, developed a speed of 480 km / h, cruising speed was 320 km / h, flight range - 1500 km, ceiling - 10,000 m. The run length with a takeoff weight of 7100 kg was 340 m. The time to climb 5000 m was 7.1 minutes.

The maximum bomb load increased to 1500 kg, normal - 1000 kg. Moreover, all one and a half tons of "payload" could be dropped both from level flight and from a dive, both from internal and from wing bomb racks. The possibility of hanging large-caliber bombs was increased, for example, it was possible to take on board three FAB-500s, or four FAB-250s, or twelve FAB-100s, or four containers for 1200 kg of chemical warfare agents. The aircraft steadily dived at a speed of 550 km/h at angles up to 75 degrees. Defensive small arms still consisted of four ShKAS machine guns in standard configuration.

In the conclusions of the report on the results of state tests that ended in January 1941 year, noted:

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"The Ar-2 aircraft, made on the basis of the SB aircraft. according to its performance data, it is much better than the serial SB aircraft, but in terms of speed it lags behind modern foreign and domestic twin-engine medium bombers... The flight properties of the Ar-2 aircraft are similar to those of the SB aircraft, and the control of the aircraft is even easier. In terms of controllability and visibility for the pilot, the aircraft is convenient for piloting in formation."

In addition, "arches" were among the first to be equipped with fiber-protected gas tanks instead of welded metal ones, which significantly increased the "fire resistance" of machines. It must be said that the Soviet Union has been working on the problem of preventing the ignition of fuel tanks when bullets hit them since 1936, there was even a special design bureau, but no matter what it came up with, "the goal was not achieved." The fiber tank design, introduced into mass production just before the war, is another "Hitler's gift."

In February 1941, after revision and elimination of comments on the work of the propeller group, the Ar-2 managed to obtain a maximum speed near the ground of 443 km/h and 512 km/h at an altitude of 5000 m. aircraft.

A group of inmates under the leadership of the former director of the TsAGI experimental design plant, now an ordinary convict V.M. Petlyakova, by April 1940 had made, as ordered, a high-altitude fighter-interceptor "100" with two M-105 engines and a double pressurized cabin. | In May, the plane took part in the parade on Red Square and, they say, liked the beloved Politburo. In the evening, in the prison bedroom, trying not to make noise and not to wake the guards, bored at home, engineers rocked Petlyakov. The "enemies of the people" rejoiced early. Military comrades, assessing the capabilities of potential adversaries, drew attention to the fact that they did not have any high-altitude bombers, respectively, and there was nothing to "intercept high-altitude". Petlyakov was offered for one and a half

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months to convert a fighter that has become unnecessary into a high-speed dive bomber. The rush began again: leaving the glider unchanged, the pressurized cabin, high-altitude equipment and turbochargers were removed from the car, the pilot's seat was moved forward, and the third crew member was brought in. Working drawings were immediately transferred to plant number 22 for mass production, which began on June 23, 1940. A prototype was not built. The official state tests of the machine, which received the name Pe-2, passed six months later.

With an aircraft takeoff weight of 7,536 kg, a maximum speed of 540 km/h was reached at an altitude of 5,100 m, a flight range of 1,200 km, and a ceiling of 8,700 m. The pilot was protected by a 9 mm armored back. Armament consisted of four ShKAS machine guns. There was a bomb bay for four FAB-100s inside the fuselage, and four FAB-250s on the external sling. The normal bomb load was 600 kg, with an overload - 1000 kg. It was possible to drop only external bombs from a dive, since there were no devices for removing bombs from the fuselage. Moreover, the "dive" itself had to be planned before the flight: in this case, the entire combat load was hung on external bomb racks. The largest bomb that the Pe-2 could take was the FAB-500.

As a reward, the Petlyakists were allowed to spend the night at home, leaving, however, to work in the NKVD system.

A team of "pests" led by A.N. Tupolev worked for almost a year on the project of the dive giant Pb with four M-105 engines. Academician A.I. Nekrasov estimated the trajectory of a steeply diving aircraft and the behavior of a bomb separating from it and: "It turned out that due to the presence of lift, the aircraft seemed to be removed from the bomb. In motion relative to the aircraft, the center of gravity of the bomb departs at an angle of 60-65 degrees to the construction axis of the aircraft.

And that's it! No forced bomb-removing mechanism is needed: "This meant that if on the front

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If the wall of the bomb bay is given a bevel of 65 degrees, and on the bomb locks, the ears of the bombs should come out forward at an angle of 65 degrees, then the bomb can be dropped from the compartment in a dive in the same way as in level flight.

Prison engineer G.S. Frenkel designed the PFB (PBP-1) periscope sight, which ensured high accuracy of dive bombing.

The PB project was ready in September 1939. However, in the early spring of 1940, the efforts of the Tupolev team were refocused on the creation of a high-speed twin-engine dive bomber with M-120 engines equipped with TK-2 turbochargers. Developed by V.Ya. Klimov, the promising 18-cylinder M-120 engine structurally consisted of three M-105 blocks arranged in a star at an angle of 120 degrees. An increase in the number of cylinders theoretically made it possible to increase the power to 1800 hp at takeoff and 1500 "horses" at an altitude of 6000 m. 650-670 km / h), the maximum bomb load is 2000 kg with a range of 1000 km and the bomb load is 1000 kg with a maximum range of 2500 km. The crew was to consist of three people, the armament was to consist of two "onboard" ShVAK cannons in the center section and four ShKAS machine guns. To improve visibility, the cockpit was placed in the bow, and at the bottom there was a long window that made it possible to see forward and down at angles up to 75 degrees to the horizon. Protected tanks, a neutral gas system, seat reservations were provided.

Aircraft design officially started | March 1940. And at the beginning of the summer, all Tupolev residents in absentia, without an "unreasonable" summons to court presence, were sentenced to 10 years in labor camps and 5 years of disenfranchisement. So that they don't relax. Personally, ANTU, as the leader, was given fifteen years of "correction" plus five "by the horns".

The first flight of the aircraft "103" took place on January 29, 1941. From the very beginning it was clear that the scorers

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The ship is "successful and significantly outperforms the Pe-2 in terms of speed, bomb load, defensive armament and ease of piloting." In June-July, the machine passed state tests and demonstrated outstanding performance: with a normal take-off weight of 10,990 kg, a speed of 640 km/h was achieved while maintaining the rest of the ordered parameters of range, altitude, and bomb load. Instead of the Klimov M-120 engines, it was necessary to install the Mikulin AM-37 with 1400 hp, since the refinement of the three-block engine progressed slowly and with great difficulty. For several years, it was not possible to reach the specified levels of power and engine reliability. In 1942, work on the M-120 was stopped. Do not wait and turbochargers.

The act of the commission noted: "Aircraft "103", which has the speed of a modern fighter aircraft and has passed the first stage of state tests, is recommended for construction as a multi-purpose aircraft capable of performing the tasks of a bomber and fighter, for which purpose to strengthen its cannon armament and armor protection."

The "103U" variant, which took off on May 18, 1941, according to the wishes of the customer, was made four-seater - a navigator's seat appeared slightly behind and to the right of the pilot, equipped with a suspension for 10 RS-132 rockets and one more firing point behind. The speed became 610 km / h at an altitude of 7800 m, the range - 1900 km. It was this aircraft that was recognized as meeting all the requirements and recommended for serial construction, which was planned to be deployed at plant No. 18 in order to produce 1,000 aircraft in 1942.

In short, by 1941 the People's Commissariat and the Air Force had plenty to choose from.

The Polikarpov SPB was preparing for serial production, flying at a speed of 520 km / h and lifting 1,500 kg of bombs on an internal and external sling.

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There was a "semi-dive" bomber Pe-2, which, due to its fighter origin, had a high speed - 540 km/h - a large margin of safety and excellent maneuverability. For the same reason, the aircraft could carry a rather modest load for its size - only 600 kg (1000 kg in overload) and had poor takeoff and landing qualities. The largest bomb that the Pe-2 could take was the FAB-500.

There was also a modification of the SB - a full-fledged Ar-2 dive-bomber, with already established production, well mastered by pilots, with a maximum speed of 512 km/h and carrying 1,500 kg of bombs.

The promising Tu-2 was made in metal - the best front-line bomber in the world, with a speed of 610 km/h, powerful machine-gun and cannon armament, capable of taking on board 2000 kg of bomb cargo (when overloaded, it could carry three FAB-1000), fully adapted for bombing both from a dive (slow or high-speed) and from a horizontal

flight.

A comparative assessment of the combat effectiveness of these machines shows that when solving the task of destroying small targets, the Ar-2 aircraft was 1.4 times superior to the Pe-2 and the German L-88A-4 of the 1940 model by 1.3 times. When working on areas, the Ar-2 was better than the Petlyakov, but 1.3 times inferior to the Junkers, although it flew slower, but it lifted up to 3000 kg of payload and had from five to seven MC 18 machine guns as defensive weapons and MS131. The SPB was slightly inferior to the Pe-2 in terms of maximum speed, but it was superior in rate of climb and took more bombs. The magnificent Tu-2 was out of competition, but the Red Army did not receive it.

By that time, the chief designer of plant No. 1 N.N. Polikarpov fell out of favor, his design bureau, the second largest in the country, was deprived of funding and then destroyed, there was no production base, young, toothy competitors stepped on the heels, M-105 engines, experimental machines,

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having successfully completed dozens of flights, suddenly began to suffer catastrophes one after another:

"I could not get out of a spin and died on April 27, 1940, test pilot P.G. Golovin. On the second aircraft, a wing flutter occurred during a dive, the wing and the entire aircraft crumbled in the air. The pilot M.A. was killed. Lipkin, who unnecessarily vigorously increased the dive speed in each subsequent flight. On the third plane, the rudder trimmer flew off, but the pilot B.N. Kudrin managed to land the plane and survive. The pilot refused to fly on the fourth plane.

July 29, 1940 People's Commissar A.I. Shakhurin ordered to stop further tests of the SPB, write off all the costs of its creation as losses.

Launch the brainchild of A.N. Tupolev in Voronezh was prevented by the war and the evacuation of the enterprise to the east. Then the AM-37 engine was discontinued in favor of the mass production of the AM-39 for the Il-2 attack aircraft. The bomber was converted for ASh-82 engines, plant No. 166 was built for it in Omsk, where by the spring of 1942 a series was established and 80 aircraft were built. After that, in October, by order of the Stavka, work on the bomber was curtailed and Yakovlev fighters began to be produced. As a result, the Tu-2 began to arrive at the front only at the beginning of 1944. Piece per day. "Constructed in insufficient quantities," writes enemy general Walter Schwabedissen, "the Tu-2 bomber could not have a significant impact on the course of the air war."

The final choice was made on 11 February 1941, when the release of the Ar-2 was terminated by the decision of the Defense Committee in favor of the mass production of the Pe-2, which is being deployed at factories No. 22 and No. 125. "Arochek" managed to make 198 pieces.

Pe-2 became the main front-line bomber of the Workers 'and Peasants' Red Air Fleet. In the spring of 1941, "pawns" began to enter combat units. By the beginning of the war, the Air Force received 458 aircraft.

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In 1939-1940 Polikarpov's aircraft continued to be the main fighters of the Soviet Air Force. Their production in connection with the plans to "doubling", on the one hand, and the lack of new models, on the other, even increased in 1940: 2210 I-16 fighters and 2362 "gulls" were produced.

P.D. Grushina, S.G. Kozlova, S.A. Lavochkina, M.M. Pashinina, N.N. Polikarpova, A.V. Silvansky, P.O. Sukhoi, V.K. Tairova, I.F. Florova, V.V. Shevchenko, A.S. Yakovleva, V.P. Yatsenko. In the special prison, V.M. Petlyakov and D.L. Tomashevich.

Serial engineers of the Gorky plant No. 21 I.F. Florovi A.A. Borovkov began work on the creation of an original biplane fighter with fixed landing gear as early as 1935. The conceived aircraft was supposed to have both the properties of high-speed monoplanes and maneuverable biplanes. To resolve these conflicting requirements, we settled on a biplane scheme with the same cantilever wings of traditional struts and braces. The M-85 engine was used as a power plant. The result is a very compact aircraft with a length of 6.34 m and a wingspan of 6.98 m, an aerodynamically clean airplane with a cockpit strongly shifted backwards. The armament consisted of four ShKAS machine guns. The prototype was approved for state testing in June 1937, but crashed in

the very first flight. The unexpected success of the Polikarpov I-15 in Spain fueled the military's waning interest in biplanes. As a result of the investigation of the disaster, the director and chief engineer of the plant were arrested, and the designers were offered to continue working on the basis of the airship plant No. 207. The new I-207 fighter with the M-62 engine was tested in June 1939, but did not show any advantages in comparison with the serial I-153. Option with retractable landing gear and M-63 engine - takeoff weight 1879 kg - on you

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hundred of 5000 m, it developed a speed of 486 km / h, performed a turn in 17 seconds, but at the beginning of 1940 these figures did not impress anyone.

V.P. Yatsenko, one of the oldest aircraft designers in the country, who previously worked at the Polikarpov Design Bureau, in April 1939 brought the I-28 fighter for testing - a wooden low-wing aircraft with a small reverse seagull in the wing-to-fuselage connection - "this was the beginning of the course towards the use of wood under conditions of duralumin deficiency". The aircraft was built for an 18-cylinder M-90 engine with a power of 1700 hp, which gave an estimated speed of 600 km/h. However, due to the lack of such, the M-87 was installed in 950 "horses". With him, the car was able to develop 545 km / h. The armament was supposed to be very powerful: two 12.7-mm ShVAK machine guns and two ShKAS machine guns, or a ShVAK cannon and two BS machine guns. At state tests, the I-28 received high marks: "Of the best fighters, it flies well, it is very pleasant to pilot, it sits tightly in the air ... at present it is the first high-speed fighter in the USSR." The tests continued, and the aircraft was already going to be put into mass production: the Saratov Plant No.-292 was instructed to stop building the R-10 reconnaissance aircraft and produce 30 copies of the I-28 with the M-88 engine. Only five managed to be produced, in June 1940 all work on the aircraft was stopped - Yatsenko (not the aircraft) could not stand the competition.

N.N. Since 1938, Polikarpov has been working on the I-180 monoplane fighter with a maximum speed of 600 km / h, which was supposed to replace the I-16 in the troops. Moreover, it was supposed to be produced on a truly Stalinist scale. According to V.B. Shavrov, I-180 "was designed and built as a mass fighter for those one and a half hundred thousand pilots who were to be released in the coming years according to the put forward slogan."

The aircraft also repeated the prototype according to the scheme, which made it easier for combatant pilots to master it, but had a slightly larger size, power and much better years.

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but technical qualities. The technology also did not differ much from the I-16, which promised a painless introduction into production. However, the car (and the designer) was fatally unlucky. In the very first test flight on December 15, 1938, the company's chief pilot, the legendary pilot Valery Chkalov, who entered the highest Kremlin offices, mysteriously died. Four months later, the famous test pilot Thomas Susi crashed on the second copy of the fighter. No malfunctions were found, it was suggested that the pilot died in the air from sudden cardiac arrest. The third version with the M-88R engine with a power of 1000 hp. was ruined through the fault of the pilot. Nevertheless, the I-180, which in all respects surpassed the German B + {-109E, in July 1939 decided to launch a series at the Gorky plant No. -21. The aircraft, weighing 2675 kg, with the M-88R engine, developed a maximum speed of 585 km/h, had a flight range of 900 km, a ceiling of over 110,000 m. battery and firing synchronously between the upper cylinders

engine.

By the summer of 1939, N.N. Polikarpov drafted a high-altitude fighter I-200 ("K") for a promising liquid-cooled engine AM-37 with a design speed of about 700 km / h at an altitude of 7000 m. But, since both the Mikulin engine and turbochargers, continued to loom in the future, in the autumn Nikolai Nikolayevich began to draw a fundamentally new three-gun fighter I-185 with a two-row star of much greater power, with a sharp

an increase in the specific load on the wing: "The design was new, very technologically advanced and adapted for mass production, without concessions to the traditions of factories."

The story of the I-220 (IS) fighter looks like a perfect anecdote. In February 1938 M.M. Kaganovich, on the basis of the Novosibirsk Plant No.-153, created a design bureau for his son-in-law A.V. Silvansky. The backbone of the team was

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employees of the aircraft designer D.P. Grigorovich. To accelerate the creative process in every possible way, the aircraft project was ordered by N.N. Polikarpov "requisitioned" a variant of a deep modification of the "donkey" - TsKB-25 with a two-row star "Mistral-Major", which over the years turned into M-88.

However, the 22-year-old precocious talent who got into the "stream", possessing the necessary ambitiousness to the full extent and even having the audacity to challenge the "king of fighters" to the socialist competition, showed absolute ignorance in everything directly related to aviation - "with difficulty distinguished the wing console from the spinner of the screw. Presented in September 1939 for testing, the "aircraft of its own design" touched the ground with its propeller on takeoff. By order of Silvansky, the propeller blades were cut with hacksaws, but even after the "cutting", the apparatus, painted in proletarian red, diligently puffed, smoked, but refused to take off. Nevertheless, having obtained a new propeller, it was brought to Moscow to be pushed into serial production.

The joint commission of TsAGI and the Air Force Research Institute drew up a statement stating that the aircraft was quite presentable and, after the elimination of certain shortcomings, would be ready "for release for the first flights." In February 1940, test pilot E.G. Ulyakhin, with great difficulty, managed to lift the I-220 off the ground and climb 200 meters, after which he somehow returned "to his native land" and announced that "you can't fly on this shit." By this time, the high-ranking father-in-law flew out of the ministerial chair, and by the summer, Silvansky's shop was finally closed.

Student N.N. Polikarpova, his former deputy M.M. Pashinin in 1937 became the chief designer of plant No. 21, which mass-produced donkeys. Pashinin followed the path of Polikarpov, carrying out a deep modernization of the I-16, but instead of the "star", he decided to install an in-line M-107 engine with a capacity of 1650 hp on his version of the fighter. With. With it, the maximum speed

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at an altitude of 7000 m theoretically could exceed 680 km / h. The engine - a common thing - did not arrive on time, but with the M-105 engine, with a take-off weight of 2670 kg, the hooped I-21 in July 1940 demonstrated a speed of 573 km / h. The armament consisted of a 23 mm motor gun and two ShKAS machine guns. In terms of speed, rate of climb and armament, the aircraft was superior to the notorious "Messer". In addition, 60% of the parts and assemblies of the Pashinin fighter were similar to those of the I-16, which ensured the trouble-free introduction of the machine into a series at the same plant. Representatives of the Air Force noted insufficient stability in flight and too high a landing speed. The shortcomings, quite understandable for the experimental model, were removable and were eliminated by the beginning of 1941. But Pashinin was late for the distribution of prizes in terms of time: by order of the NKAP dated February 10, 1941, plant No. 21 was determined to be the head for the production of the LaGT fighter.

The chief designer of plant No. 135 P.O. also tried to solve the problem set by the Defense Committee. Dry. It should be noted that the Air Force Directorate required that all new fighters be exclusively high-altitude and equipped with turbochargers. Most designers ignored the requirement due to the complete unsuitability of the TK-2 for practical use. But not dry. In June 1940, he presented the I-135 (Su-1) high-altitude fighter with the M-105P engine. The tests continued until the spring of 1941, and eventually the turbochargers were removed from the aircraft. The result was a machine that, in terms of performance characteristics, slightly surpassed the Yak-| and not received a sequel.

The chronicler of the Tupolev sharashka Kerber wrote: "The credo of Pavel Osipovich is this: "When I make a car, I fulfill all the requirements of the customer. Further, it is not my business, if such a machine is needed, let the ministry and factories organize its production. I am a constructor, not a dispatcher, not an organizer, not a pusher." The result has always been

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one is that good aircraft were built in unique specimens, but they were not put into series." One example of Sukhoi's "infantility" was the I-135.

For many aircraft, the path to the sky was blocked by the lack of powerful and reliable engines. The designers over and over again redrawn the drawings for new promising engines, which were about to enter service: M-64, M-70, M-71, M-81, M-89, M-90, M-106, M-107, M-110, M-120... but when you turn it on, it doesn't work.

On May 14, 1940, the command of the Red Army Air Force reported to the Central Committee of the All-Union Communist Party of Bolsheviks:

"The main obstacle in the development of our aircraft is the engine. Here our backwardness from the advanced capitalist countries is very great. Motors M-63, M-858, M-105, which enter serial production with a large number of defects, are unreliable in flight, often fail, the service life of these motors is very short ... Until now, we do not have a good propeller. .. We ask the Central Committee of the All-Union Communist Party of Bolsheviks to urgently take measures to improve our engines and propellers, otherwise the speeds of our aircraft in the near future may lag even further behind foreign ones."

Soviet scientific thought, based on the work of "serf scientists", still remained in the position of "catching up". It could not be otherwise in a country in which party bosses were considered the main specialists "in improving motors and propellers", and in general in solving any problems.

There were two more or less decent new water-cooled "engines" in the USSR - the Klimov M-105 (weight 600 kg, takeoff power 1100 hp) and Mikulinsky AM-35A (weight 830 kg, takeoff power 1350 hp) , air-cooled — 14-cylinder twin-row star of Design Bureau Shvetsov M-82 (weight 850 kg, take-off power 1700 hp). Moreover, they all suffered from many "childhood diseases" and required painstaking refinement. Soviet engine builders were limited not only by the lack of fresh ideas, but also by the low quality of domestic gasoline. Domestic petrochemical industry

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was unable to obtain high-octane gasoline in the required quantities, and where "foreign" designers managed to increase the compression ratio, our "Kulibin" had to use large cylinder volumes, which led to an increase in the weight of the engine and a decrease in its specific power characteristics.

So, at the beginning of 1941, a modification of the Messerschmitt Bf-109E-2, equipped with a new OV 601M engine (weight 700 kg, take-off power 1215 hp) began to enter service with the Luftwaffe fighter groups. As a result of an increase in the compression ratio from 6.9 to 8.2 and the use of SZ gasoline with an octane rating of 96 instead of 87-octane B4, this engine developed 1270 hp in a 1-minute combat mode, which gave the aircraft a noticeable increase in speed (up to 605 km/h at an altitude of 5000 m) and rate of climb. The latest Bf-109E series were equipped with the same engines, which as a result became 30 km / h "faster".

Pilot Plant No.-115 KB A.S. Yakovlev began to implement an order for a high-speed fighter in May 1939. According to the tactical and technical requirements of the Air Force, it was necessary to build two prototypes with the M-106 engine with a maximum speed of 620-650 km / h, a flight range of 600 km, an altitude of at least 11,000 m, armament - one BS and two ShKAS. The second copy was distinguished by the presence of turbochargers and the absence of a large-caliber

machine gun. The project was created by the leading designer K.V. Sinelytsikov and the chief designer of the plant K.A. Vigantom.

The first copy of the I-26 was rolled out for factory testing in January 1940. The motor had to be supplied with an M-105P with a power of 1100 hp, but a 20-mm cannon fit in the collapse of the cylinder block. The aircraft had excellent aerodynamic shapes, a rational layout, was quite easy to pilot for a mass pilot, unpretentious in maintenance, but turned out to be overweight and with insufficient overall strength.

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On April 27, 1940, the chief pilot of Yu.I. Piontkovskiy. The second prototype reached a speed of 590 km/h and at the end of May it was submitted for state tests, which did not successfully pass, or rather, was not even accepted for testing due to the lack of weapons, the propeller group (the engine, by the way, put into series, overheated and spat oil, the ignition system and candles regularly broke down) and the lack of equipment required for the fighter. The third prototype I-26, significantly improved (300 changes were made to the design, including copying the wing and control stick from the Non-100, the cockpit, the tail wheel stopper, other rubbish, such as hood locks and hatches that opened without the help of a tool, and a system of explanatory inscriptions - with ME-109E), was presented in October and received a satisfactory assessment.

The machine was still "raw", had many defects, but these are details, since the fighter A.S. Yakovlev was accepted into service even before the start of state tests. "It was clear to everyone," Shavrov explains, "that the plane was good, but there was no time for doubt." The military series was ordered in February, the first production aircraft was assembled even before the death of Piontkovsky, and in May 1940, the production of the I-26-P (Yak-1) began to be launched at three plants at once - No. 126, 301 and 292, in the future, factories No. 130 and No. 83 under construction were to join them. The design was promising, in terms of piloting technique the fighter turned out to be much simpler than the I-16, the flight crew was easily retrained for a new type of aircraft.

Yak-1 became the ancestor of a whole family of "yaks" of various types and modifications. The aircraft had a take-off weight of 2,950 kg, a maximum speed of 570 km/h at an altitude of 5,000 m, a range of 650 km, and a service ceiling of 10,000 m. Armament consisted of a ShVAK cannon and two synchronous ShKAS machine guns. There was no radio equipment. In reality, the mass production of "yaks" by 1941

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only the Saratov Plant No.-292 was able to establish, which produced this type of aircraft until the middle of summer 1944. Until June 22, 1941, 425 Yak-1 fighters were built.

The history of the world-famous "Lavka" began frivolously and with a "frivolous" aircraft. Sensing the wind of change, one aviation official, head of the aircraft department of the People's Commissariat for the Defense Industry V.P. Gorbunov, suggested to another official - S.A. Lavochkin - to go to the Politburo with a proposal to build a high-speed cannon fighter with a water-cooled engine. For the sake of truth, both officials were qualified designers who had a good practical school. Sketch Lavochkin "drew" for a week. On the way to the office of People's Commissar M.M. Kaganovich, friends picked up M.I. Gudkov. The highlight of the project was that, in accordance with the decision of the party to build aircraft technologically simpler and cheaper, the fighter was supposed to be made of solid wood, instead of duralumin, it was planned to use the know-how of engineer L.I. Ryzhkov - delta wood DSP-10 - plywood obtained by hot pressing of birch veneer impregnated with VIAM-B-3 resin glue. Kaganovich liked the idea;

lykh, and in May 1939 - plant number 301 in Khimki. It was a furniture factory designed to furnish the building of the Palace of Soviets.

The I-301 aircraft, according to the decree, was designed in two versions: a high-altitude fighter with an M-105 engine and a TK-2 turbocharger (set speed of 675 km/h at an altitude of 9000 m, a ceiling of 9000 m) and a front-line fighter with an M-106 engine (speed 600-625 km / h at 7000 m and a ceiling of 11,000 m). Range - 600 km. Like all other competitors, Lavochkin and his comrades had to be content with the M-105P.

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The I-301, covered with dark cherry lacquer and polished to a mirror shine, made its first flight on March 30, 1940, and in June it was submitted for state tests. The features of the new technology led someone to the fact that the aircraft turned out to be heavy: empty, it weighed 2970 kg - more than the "full" Yak-1. In addition, the military demanded an increase in flight range to 1000 km, and two additional fuel tanks had to be placed in the wings. Nevertheless, the prototype (it was not polished in vain) at an altitude of 5000 m was able to accelerate to 605 km/h. The armament was powerful, consisting of a 23-mm MP-6 gun designed by L.G. Taubin and two synchronous 12.7 mm BS machine guns. Due to numerous shortcomings, the "piano" did not pass the state tests and "quite logically" on June 29 it was recommended for launch into a series. On October 10, the government decided to start mass production of the LaGG-3 fighter at five factories; the plan for 1941 was to produce 2960 aircraft. Serial, unpolished, devices developed a speed of 575 km / h and instead of a motor-gun they carried a Berezin machine gun, since Taubin was exposed as a "pest", arrested and shot. Together with him, the "saboteur gun" was withdrawn from circulation.

Before the start of the war with Germany, 322 aircraft were produced.

A.I. Mikoyan and M.I. Gurevich started last in the fighter race, but finished in the top three. The design bureau "for maneuverable fighters" was born on December 8, 1939. Designer A.I. Mikoyan, who managed to graduate with honors from the Air Force Academy with primary education, was "born" nine months earlier, when the young specialist was appointed head of the brigade of Plant No. 1. And already on April 5, 1940, the I-200 fighter took off. Give ist fantastic! One of the historians of the Soviet era writes:

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"It is more difficult for Mikoyan and Gurevich. Mig-1! — their first car. However, it was created on time, absolutely fantastic - in a few months. One of the reasons for the success is the help of the serial plant, where the newborn design bureau is located. This is one of the oldest Soviet aircraft factories. True, Polikarpov worked on the same territory, but the fighter of Mikoyan and [Urevich] completely won the hearts of both ordinary engineers and plant managers. In general: "The old, established design bureaus (for example, Polikarpova), who had extensive experience, were left behind. And the young ones burst forward ... The generation of thirty-five-year-olds, concentrated in the newborn design bureaus, won an unconditional victory in the field of fighter aviation.

The secret of this miracle, in fact, is simple and banal: Artem Mikoyan was the brother of the permanent member of the Politburo Anastas Mikoyan, the one who "from Ilyich to Ilyich without a heart attack and paralysis." From this it is clear how the non-existent fighter "won separately" the hearts of the plant managers. The second component of success was a primitive robbery. In November 1939, the chief designer of the plant, N.N. Polikarpov, as part of the delegation, was in [Germany, when the work "on the pre-sketch design of the I-200 aircraft" began to boil. The essence of the work was to withdraw the drawings of the Polikarpov high-altitude fighter with the AM-37 engine.

On December 8, the preliminary "Mikoyan project" was ready. On the same day, by order of M.M. Kaganovich, KB-1 and the Experimental Design Department were formed, which included more than 80 best engineers of the Polikarpov Design Bureau, including M.I. Gurevich - Leading Specialist

"product" K ". When Polikarpov returned from a business trip, he no longer had a design bureau or a production base.

The process of building a prototype I-200 took place simultaneously with preparations for mass production. Without waiting for the end of factory tests, on May 25, 1940, the fighter was officially launched in

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series at the plant number-1. Before the end of the year, it was ordered to hand over 125 MiG-1 aircraft!, Stopping the production of short-range bombers BB-22. In 1941 it was planned to produce 3600 MiGs. Polikarpov, on the other hand, was given a bonus with the remnants of the destroyed "old design bureau", so that they would not loom "in the same territory" as Mikoyan, they took the hangar on the edge of the Khodynka field and called it factory No. 51. And let him say thank you for not being shot.

Instant-| was a cantilever low-plan mixed design. With the AM-35A engine, the aircraft developed a maximum speed of 628 km/h at an altitude of 7000 m. In general, at altitudes over 5000 m it outperformed all fighters in the world. Takeoff weight - 3319 kg, practical flight range - 580 km, ceiling - 12000 m. Armament consisted of two ShKAS synchronous machine guns and one BS 12.7 propeller hub. Two FAB-50s or FAB-100s could be hung on bomb racks. The main modification - MiG-3 - was distinguished by the presence of an additional gas tank and a neutral gas system.

It is important that the MiGs were made at the most powerful plant in the country, using the most modern equipment, using the most advanced technologies and skilled labor: "It can be noted that the repair qualities of the MiG-3 were exceptional. Interchangeability was well secured. It was easy to assemble one whole from two or three broken aircraft. The aircraft was very technologically advanced and remained in service for a long time..." As a result, it turned out to be the only fighter that passed the state tests on the first try. Before the start of the war with Germany, the troops received 950 MiGs.

At the end of 1940, the production of Polikarpov machines was stopped, the aircraft industry was completely focused on new designs that won the competition for the Stalin Prize: Plant No. 1 began to produce MiG-3,

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Plants No. 292 and No. 301 switched to the Yak-1, instead of I-180, sparkling LaGGs rolled out of the shops of Plant No. 21. In accordance with the world "fashion" and an eye on the Messerschmitt-109, which became the star, they were all equipped with water-cooled in-line engines. The next project of Polikarpov was buried, including due to the defectiveness of the M-88 engine, which was never really finished. At that time, air-cooled motors, giving significant drag, were considered unpromising, unable to provide a sharp increase in speed. I-180, having released 13 copies, was removed from the series, and at the top there was an opinion that "Polikarpov was exhausted." Therefore, the swan song of the designer I-185 - the best Soviet fighter of the war period - was expected by an unhappy fate.

It was only in March 1940 that factory tests of the experimental attack aircraft TsKB-55 with the AM-35 engine were completed. The aircraft, built in the Ilyushin Design Bureau, was a two-seater. The nose part was an armored box included in the power circuit of the fuselage, the thickness of the armor was 4-7 mm. The total weight of the reservation is about 700 kg with a total takeoff weight of 4735 kg. The tail section was made of wood and plywood. The speed near the ground turned out to be 362 km / h, the flight range was 618 km. The armament consisted of four ShKAS wing-mounted machine guns with 650 rounds of ammunition each, one "stern" machine gun in the rear of the cockpit, and 400 kg of bombs. Aiming during bombing was carried out by the navigator-gunner using the OPB-1 sight. The performance characteristics of the vehicle turned out to be lower than those ordered by the military, they demanded a more powerful and reliable engine, strengthen

armament, increase the speed and flight range, equip the machine with a transceiver radio station.

In October 1940, he made the first flight of the TsKB-57 of a similar design, but single-seat and with a low-altitude AM-38 engine with a power of 1600 hp. Through the liquidation

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a gas tank was added to the gunner's place, the thickness of the rear armor was increased to 12 mm, and the RSI-3 radio station was mounted. Two ShKAS machine guns were replaced with 20 mm ShVAK cannons and eight RS-82 shells were added. The aircraft weighed 5,300 kg and developed a speed of 423 km/h near the ground, and 437 km/h at the altitude limit. In December, the NKAP issued an order to launch the attack aircraft, which received the name Il-2, into mass production. The introduction of the aircraft at factories took place simultaneously with state tests. The flight weight of serial copies, which were manufactured much more clumsily than the representative head machines, reached 5800 kg, speed - 380 km / h at the ground and up to 410 km / h at an altitude of 2500 m.

In May-June 1941, the first Il-2s began to enter the Air Force combat units. By the beginning of the war, 249 aircraft had been built.

Another question: what did the Motherland not receive? For example, a modern reconnaissance aircraft.

Reconnaissance aviation in the USSR was frankly neglected as not quite "combat". In the speech of People's Commissar of Defense K.E. Voroshilov at the 18th Congress of the All-Union Communist Party of Bolsheviks in March 1939, it was said as a great achievement that over the past five years "... reconnaissance aviation has decreased by half." As a result, the materiel of the Soviet reconnaissance aviation turned out to be the most backward by the beginning of the war. On June 22, 1941, the combat aviation units located on the territory of the border military districts had 57 R-10 aircraft and 342 copies of various modifications of the R-5 biplane. Some of these machines, as noted in the Air Force reports, were "in dilapidated condition," which is not surprising, given the fact that the service life of wooden structures stored in the winter and summer in the open air did not exceed four years. In addition, SB bombers were supposed to be used as reconnaissance aircraft and there were two reconnaissance aviation regiments on the brand new Yak-2 and Yak-4 - 84 aircraft and 26 able to fly them.

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crews. In total, there were seven reconnaissance regiments on the western border, equipped with 38% of the staff.

The need for a long-range escort fighter was clearly understood, but it was not possible to make it. Before the war itself, several machines of this type were tested at once. Unlike B{-110, they were single. The Grushin Gr-1 heavy fighter with two AM-37 liquid-cooled engines, with a take-off weight of 7650 kg, had a flight range of 1890 km, a fully armored cockpit; armament: four ShKAS machine guns and two ShVAK cannons. Armored fighter V.K. Tairov Ta-3 with two M-89 air-cooled engines with a take-off weight of 6626 kg had a range of more than 2000 km and was armed with four ShVAK guns. Long-range fighter Mikoyan and [Urevich DIS-200 (Mig-5) with two AM-37 weighed 7605 kg, the range was assumed to be 2280 km. The car was supposed to be launched into a series at plant No. 1, curtailing the production of MiG-1 for the sake of such a necessary task. Armament: one 37 mm cannon, two 12.7 mm BS machine guns and four ShKAS.

Under the motors AM-37 N.N. Polikarpov built a two-seat heavy fighter TIS with extremely powerful weapons: a bow battery of four ShKAS, two ShVAK cannons in the center section, one ShKAS back-up and one ShKAS back-down. The mass of a second salvo is 5.12 kg.

However, neither the AM-37 nor the M-89 were ever put into production.

Under the I-29 escort fighter with two ShVAK cannons, designer Yakovlev tried to adapt his restless B-22 aircraft, but, as indicated in the reference book, "it was built, but almost never flew.

Meanwhile, the Battle of England confirmed that without a long-range fighter, a long-range bomber is useless. Having failed to implement the Pe-8 project, the country also lost strategic aviation, which seemed to be in the mid-1930s.

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As for the front-line bomber, V.B. Shavrov wrote on this topic: "In general, during the war, before the appearance of the Tu-2, we did not have a large-scale day bomber with a decent bomb load." Excessive enthusiasm for speed went to the detriment of the main fighting qualities. Meanwhile, the most important advantage of a bomber is the ability to inflict maximum damage on the enemy - the size of the bomb load, the ability to accurately hit targets, the efficiency and destructive power of aviation ammunition. The Tu-2 was a bit late, besides, in 1944 it was produced without brake grids and the OPB sight - non-dive.

That is why Schwabedissen pointed out that the materiel of the Soviet bomber aviation "did not quite correspond to the conditions of modern warfare": "This was one of the reasons why the results of the activities of the Soviet bomber aviation turned out to be limited."

Modern researchers came to the same conclusion: "On the eve of the war, the combat composition and armament of the attack aircraft of the SC Air Force turned out to be in general inappropriate to the nature and conditions of hostilities. Since the beginning of the war, this circumstance, together with the insufficient level of combat training of the flight personnel of the units and the operational-tactical training of the command staff of aviation formations and headquarters, as well as the leadership of the Air Force and the Red Army, led to the low efficiency of air support for their troops and heavy losses. from enemy fire.

Speaking to his colleagues after a business trip to [Germany, N.N. Polikarpov noted one fundamental point:

"It seems to us that the most valuable thing is that the German General Staff and the leadership of the German Air Force comprehended the experience of the war in Spain, created for themselves a certain doctrine of warfare and outlined the armament system of their air forces, and they worked it out

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so seriously that they do not think of any changes in the near future. Such certainty in military views creates certainty in the work of designers.

On the basis of the developed doctrine of war, the types of aircraft that wish to develop and build the German General Staff and the Air Force have clearly outlined.

strength."

At the same time, in the USSR in the pre-war period, serious research was not carried out at all to find the optimal forms and methods of the combat use of aviation in modern warfare. As a result, work on determining the optimal directions for the development of aviation and analyzing the combat effectiveness of aircraft of various types did not receive due attention. Accordingly, the appearance - flight performance data and design scheme of the aircraft, the number of engines, the composition of the crew, the composition of weapons and its layout, the required size of the ammunition load - of promising combat vehicles were not determined, recommendations were not developed for improving the already existing combat vehicles. aircraft weapons. Therefore, the designers "invented" their machines based on their own understanding and experience.

"Practically all A.N. Tupolev," Yeager recalls, "began development in the design bureau and were "invented" by Tupolev and his assistants, and not according to standard technology, when it was assumed that the military in their departments and institutes of the Air Force create "tactical technical requirements", transfer them to industry and accompany the development ... "

The absence of a substantiated concept for the construction of the Red Army Air Force led to the fact that neither the military nor the leadership of the country and the NKAP had a clear and precise understanding of what kind of combat aircraft, in what quantity and in what proportion it was necessary to equip the Air Force. Most importantly, there was no unity of views on all these issues. As a result, when making decisions on the creation of a new generation of combat aircraft, as well as on putting into service or decommissioning one or another

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aircraft, only some indicators were taken into account and compared, characterizing separately the flight and separately combat qualities of vehicles - speed, or altitude, or range. In fact, all decisions were made blindly and for the most part without taking into account the specific combat situation in which the vehicles and pilots would find themselves.

In May 1940, in the Act of accepting cases for the People's Commissariat of Defense, Marshal S.K. Timoshenko pointed out:

"The material part of the Red Army Air Force in its development lags behind the aviation of the advanced armies of other countries in terms of speed, engine power, armament and strength of aircraft. The People's Commissariat of Defense (Department of the Air Force) did not show sufficient initiative and perseverance in introducing more modern types of aircraft. The Directorate of the Air Force did not determine the direction of development of military aviation, but adapted to the People's Commissariat of the aviation industry. For this reason, the Air Force does not have dive bombers and is lagging behind in the introduction of modern types of aircraft.

Eternal rush...

Leapfrog of appointments and transfers...

An avalanche of decisions and rulings that contradict

each other...

Couriers, couriers...

The mass of wasted energy and resources ...

Wasted time...

Somehow, having worn out all the nerves in one of the bureaucratic offices, Polikarpov threw in his heart: "They can at least complain to Goering, but we have no one." Nikolai Nikolaevich, of course, got excited. When it turned out that the sole decision of the Supreme Commander-in-Chief to curtail the production of the Tu-2 bomber turned out to be erroneous and there was no one to blame for this mistake, Comrade Stalin called Shakhurin to him and said: "And yet you did wrong. You should have complained about me to the Central Committee." True, no one has ever attempted such a feat. But it is reliable

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there is a case when Comrade Stalin "complained" in the PC about Shakhurin:

"Checking the work of the Air Force and the complaints of pilots from the front about the poor quality of our aircraft led to the conclusion that the former People's Commissar of the aviation industry Shakhurin, who handed over aircraft for the front, then the former chief engineer of the Air Force Repin and his subordinate Seleznev, who

they accepted planes from Shakhurin for the front, they were in collusion with each other in order to accept poor-quality planes from Shakhurin, passing them off as good-quality ones, in this way to deceive the government and then receive rewards for "fulfillment" and "overfulfillment" of the plan. This criminal activity of the persons mentioned above continued for about two years and led to the death of our pilots at the front... Thus, the crimes continued, the front received low-quality aircraft, accidents followed accidents and our pilots paid for it with their blood."

Needless to say, the appeal had an effect.

On June 22, 1941, the time "given to us by history" ended. True, Hitler had three times less of it.

On the eve of the invasion of the Soviet Union, the Air Force of the Third Reich had 6852 aircraft. This is ridiculously small, considering that in September 1940, Soviet "analysts", when compiling "Considerations on the Fundamentals of the Strategic Deployment of the Armed Forces", counted from Germany "from 14,200 to 15,000 aircraft, of which 4,500-5,000 bombers, 3,500 4,000 fighters, 400-600 scouts, 3,000 transports" and predicted that, taking into account Hitler's potential allies, which included Finland, Romania and Hungary, 15,100 aircraft could be deployed against the USSR.

In fact, in the German "air armada" allocated to participate in the "Barbarossa" operation, there were 3909 aircraft of various types and for various purposes.

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niya. For example, there were 313 transport workers and 326 communications aircraft. Of the remaining 3270 combat vehicles, 786 were scouts.

Then there were 965 fighters (approximately equally BE-109E and B + E-109E), 102 bomber fighters (BE-110), 952 bombers and 456 dive bombers - a total of 2484 "serious aircraft."

Each army group received one air fleet.

The Sever group was supported by the 1st Air Fleet - 830 aircraft, including 203 fighters and 271 bombers.

The operations of Army Group Center were provided by the 2nd Air Fleet, it was the most powerful of all — 1712 aircraft, including 384 fighters, 299 bombers, 98 fighter bombers and 425 dive bombers.

To support the South group, the 4th Air Fleet was allocated - 1199 aircraft, including 366 fighters and 360 bombers.

Finally, the 5th Air Fleet was stationed in Northern Norway - 117 aircraft, including 78 fighters and bombers.

If we talk about the Nazi allies, then on June 22 they did not participate in the "treacherous attack" and did not smash the "peacefully sleeping airfields", although later they nevertheless entered the war and threw up another 880 aircraft.

In general, this is everything. And we were told that "the German was pushing with equipment".

The peace-loving and gullible Stalin, as they wrote in Soviet annals, had only 1,540 "new types of combat aircraft." What is already untrue: there were 2363 combat units in the Armed Forces of the USSR of new types of aircraft. In addition, "a significant number of machines of obsolete designs" were in service.

By the beginning of the war, the Soviet Air Force, according to the data given in Statistical Collection No. 1, had 24,488 aircraft, and among them - 18,759 combat

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aircraft, including 6877 bombers, 9881 fighters, 1934 reconnaissance aircraft. A statistical study of the Russian General Staff in the column "Was in service" as of 06/22/1941 gives a figure of 20,000 combat aircraft: 8,400 bombers and 11,500 fighters.

8920 military vehicles (of which 7675 were operational), including 5421 fighters, stood guard over the borders with Europe.

By county it looks like this:

Leningrad Military District - 1342 aircraft, including 902 fighters and 394 bombers.

Baltic Special Military District - 1344 aircraft, including 744 fighters and 453 bombers.

Western Special Military District - 1812 aircraft, including 1043 fighters and 489 bombers.

Kiev Special Military District - 2059 aircraft, including 1341 fighters and 466 bombers.

Odessa Military District - 1071 aircraft, including 687 fighters and 287 bombers.

In addition, 1769 aircraft (1506 serviceable) were part of the aviation of the Baltic, Black Sea, Northern fleets and the Pinsk flotilla.

In addition, 2300 combat vehicles were part of the five corps of the High Command Aviation. With the exception of the 5th Far Eastern Corps, they were deployed on the territory of special districts, on the Novgorod-Smolensk-Kursk-Zhitomir-Zaporozhye line.

Thus, the 1st and 2nd long-range bomber corps—4 bomber and 2 fighter divisions—1,080 aircraft were based "on the lands" of the KOVO. In the first three days of mobilization, 8 air divisions were supposed to arrive in the district, therefore, in June 1941, drawing up the "Note for the period of defense according to the mobilization plan", General M.P. Kirponos expected to have 6,760 aircraft on his Southwestern Front.

We can safely say that the Motherland had something. To be more precise, on June 22, 1941, a five-fold quantitative superiority of Soviet

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Russian Air Force over the enemy in fighters, and twice in bombers (excluding ADD). Most of the "new types" aircraft were also located here: 957 MiG-1 fighters! and MiG-3, 102 Yak-1 fighters (that is, in total the same number as all German ones), 205 Pe-2 bombers, 133 Ar-2 dive bombers, 209 Su-2 multipurpose aircraft and 18 Il- 2. In fact, more, since the data in the Statistical Book are given on | June.

It should go without saying that only the notorious "new types" are suitable for war, and everything else is rubbish, incapable of combat, flightless, non-shooting, incapable of inflicting damage to the enemy. Which is just STUPID.

Just from the latest aircraft in 1941, there was the least sense. These precocious constructions, created in a furious race, with unfinished engines, adopted in advance, have not yet really taken to the wing. In addition, the rapid expansion of production and the emergency development in the series led to a decrease in the quality of machines and a sharp increase in the number of accidents and disasters in military units - 4-5 daily! It was during this period that the head of the Main Directorate of the Air Force P.V. Rychagov, according to legend, told Stalin to his face: "You make us fly on coffins!"

The very first sorties of the pilots of the assault aviation regiments on a combat mission revealed a number of serious defects in the Il-2 attack aircraft. Under the conditions of field airfields, insufficient chassis strength was revealed, which led to frequent aircraft breakdowns, and sometimes catastrophes. The fuel supply on the aircraft was recognized as not providing the required range, especially against targets in the tactical depth of the enemy. When firing, the guns gave continuous delays due to the incompleteness of the pneumatic reloading system and transverse ruptures of the cartridge cases in the chamber. And most importantly, the combat effectiveness of the "battlefield aircraft" was minimal.

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On the one hand, its weapons did not correspond to the tasks of delivering powerful strikes against motorized infantry and tank columns, enemy airfields, infantry and vehicle concentrations.

The ShVAK cannon, as we remember, was obtained by "re-barrelling" a heavy machine gun of a similar design. The projectile for this gun had to be made thick and "blunt-headed" in order to fit into the automatic machine gun, and therefore not to go beyond the length of the standard 12.7-mm cartridge. The disadvantages of such a "modernization" were revealed rather soon: a weak destructive effect when firing at all-metal aircraft due to the small mass of the projectile and the scanty amount of explosive in it; a rapid decrease in the speed of the projectile on the trajectory due to unsatisfactory aerodynamic shape (in this case, the time of the projectile approach to the target and the probability of its destruction increased). In addition, Ilyushin in a hurry chose the path of "least resistance" and placed the cannons in place of the "extreme" ShKAS machine guns, which led to aiming errors and increased dispersion of projectiles due to insufficient wing rigidity. Tests carried out in the summer of 1942 showed that the ShVAK gun did not penetrate the armor of even light German tanks, its maximum capabilities were at an angle close to normal, from a distance of no more than 250-300 m to make a "hole" in 15 mm armor. According to the results of the tests, it was recommended: "Il-2 aircraft armed with ShVAK cannons are inefficient to use against tanks, but it is better to use them 5–10 km in the rear against infantry and fuel supplying tanks."

High-explosive bombs were dropped by eye: the PBP-1 sight only blocked the view, was useless when shooting and bombing at ultra-low altitudes, and during a rough landing, the pilot bruised his head on this device. For this reason, in parts, the sight was dismantled and handed over to the warehouse.

On the other hand, the "airborne HF" variant did not work out, the "flying tank" turned out to be quite vulnerable.

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The armored box reliably protected only from rifle-caliber bullets, and all German fighters had already switched to cannon armament. The tail part of the fuselage was wooden, "and it even happened that the tail almost broke off, literally cut by a machine-gun burst." On the IL-2 of the first series, there was no armor protection on top of the pilot's head, engine and rear gas tank, as well as a "stern" firing point, which, in the absence of fighter cover - and it was usually absent - made it defenseless from attacks from behind, led to huge losses of vehicles and flight personnel. Effective weapons against low-flying aircraft were German rapid-fire anti-aircraft guns of 20 mm and 37 mm caliber. In July-September 1941, the attack aircraft was killed on the 8-9th sortie.

The favorite of the fighter competition was the Mig-3 fighter - everything coincided here: Polikarpov's talent, and a powerful production base, and the name Mikoyan. The fact that at high altitudes the plane flew faster than anyone warmed the soul. Sources emphasize that it was the only one of its competitors that passed state tests the first time. And this is understandable. People's Commissar Shakhurin recalls: "As soon as one of the designers reported:" Comrade Stalin, Filin slows down the tests of my fighter, makes all sorts of claims, "and a sharp turn took place in the fate of Filin." There is nowhere cooler: on May 23, 1941, the head of the Air Force Research Institute, Major General A.I. Filin was arrested, tried by a military tribunal, and then shot as a participant in an anti-Soviet conspiracy. In addition, the chief of staff of the Air Force Research Institute, as well as many heads of departments and leading engineers, were removed from their posts as inappropriate for their official position. All of them were accused of wrecking and slowing down the introduction of new aviation technology. The order stated that the tests of new aircraft, including the MiG-3, were carried out incorrectly, while their flight data were deliberately underestimated.

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All those who remained at large instantly understood the "general line of the party": they carried out the tests "correctly", or immediately "introduced new aviation equipment", postponing the tests for later. General N.S. Shimanov testified during the post-war interrogation: "Instead of reporting to the People's Commissar of Defense that planes were falling apart in the air, we sat at meetings and wrote schedules for eliminating defects on planes." After the war, when the time came to calculate the "price of victory" and it turned out that non-combat losses in aviation amounted to 60,300 aircraft (56.7%), the "general line" ran in the opposite direction. Those who were responsible for the production of aircraft and those who took them into service were charged with criminal activity, which consisted in the "systematic production of defective aircraft and aircraft engines" and "dragging" them into service with the Red Army air units:

"The former People's Commissar of the Aviation Industry, SHAKHURIN, in pursuit of digital indicators for the implementation of the plan, systematically violating government decisions, launched into mass production aircraft and engines that had major structural defects. Along with this, through the fault of SHAKHURIN, aircraft and engines that did not pass state and military tests were launched into mass production. In the process of production itself, cases of violations of the technological process and poor-quality work were allowed ... as a result of which a large number of accidents and disasters occurred in aviation units, pilots died, and many defective aircraft accumulated that could not be used in battles with the Germans".

In the spring of 1946, the fate of Alexei Ivanovich also "took a sharp turn": he was deprived of all awards and sent to prison for seven years.

Already in the troops it turned out that the newest fighter is a natural "bucket of parts." In the spring of 1941, a serious defect was discovered in the engine

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AM-35A propeller: failure of the electromechanical control of the Stechkin-Polikovsky blades. A number of disasters occurred in the combat units, including those due to the fault of the motor. For about a month, the entire armada of the MiG-3 stood motionless on the ground, until they found a method of "treatment": the control of the blades was replaced with a mechanical one. Since April, retraining of pilots resumed in the units, it was not only in blades.

From the memorandum of the head of the 3rd department of the ZapOVO P.G. Begma to the Secretary of the Central Committee of the CP(b) P.K. Ponomarenko dated June 17, 1941:

"Fighter aviation regiments of the 9th mixed aviation division - 41, 124, 126 and 129 received 240 MIG-Ti MIG-3 aircraft for rearmament.

As of June 12, 1941, 53 accidents occurred in the process of mastering the MIG-1–MIG-3 aircraft by the flight crew. As a result of these incidents, 10 aircraft were completely destroyed and cannot be repaired, 5 require factory repairs, the rest require major repairs in aviation workshops. A total of 53 aircraft were disabled.

Over 100 aircraft are temporarily unserviceable due to various factory defects in the aircraft and engine. Thus, at present, all regiments of the 9th mixed air division have 55-90 serviceable aircraft for 206 pilots flying on MIG-1 and MIG-3 aircraft.

Recently, cases of flight accidents on MIG-1-MIG-3 aircraft due to the fault of the material part of the aircraft and weapons have become more frequent. In just 10 days of June, for this reason, 30 flight accidents occurred in parts of the division...

From June 1 to June 10, 1941, in the 126th and 129th air regiments, 6 engine accidents occurred due to factory defects, the defects have not yet been definitely established. Engine accidents occurred in the air, as a result of which [the aircraft crashed, 2 aircraft crashed and 3 aircraft broke down... , unkind

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natural fuel, as a result of which detonation may occur, as well as poor-quality lubrication of engine parts.

Shortcomings in the armament of the new material part of the MIG-Ti MIG-3 aircraft.

When shooting machine guns in April-May of this year. most machine guns did not shoot at all for various factory defects. On several aircraft, there are cases of failure of machine gun synchronizers, which led to arbitrary and non-synchronous firing...

The main reason for the propeller blades to shoot through is: the failure of the shank and shaft of the internal gear lever of the synchronizer, due to the design and technological flaws of the synchronizer of plant No. 24, the details of which cannot withstand the load that occurs during the firing of the BS machine gun.

According to the conclusion of the commission chaired by the engineer-inspector for armaments of the ZAPOVO Brodov, it was established that it was dangerous to make changes in the design of the BS machine gun firing synchronizer.

At this stage of the development of the MIG-1-MIG-3 aircraft, a certain opinion of the flight composition on the flight performance data of this aircraft.

One of the best and most experienced fighter pilots (he has been flying fighters for 11 years) of the ZapOVO Air Force, who has mastered the MIG-3 aircraft for combat use, the commander of the 124th fighter regiment, Major Polunin, says: quality can be used as an interceptor. The high horizontal speed of the aircraft makes it possible to fight against the enemy aircraft in pursuit and during interception. Due to the insufficient maneuverability of the aircraft, it is difficult to conduct group air combat, for example, in almost one coup over the wing, the aircraft loses heights of 700-600 meters. Aerobatic flight requires a lot of attention, because. at the slightest uncoordinated actions of the pilot, the aircraft immediately breaks into a tailspin, and the recovery from the spin is difficult and this will require a lot of altitude. On landing, the plane does not tolerate even the slightest mistakes of the pilot in the technique of piloting

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roving. The aircraft rests only on the motor, and the power of the AM-35-a motor for this aircraft inadequate.

The AM-35-a motor has a number of defects that need to be eliminated. After 85-10 hours of engine operation, spark plugs fail on take-off, the engine, for reasons that are still unclear, interrupts and reduces power. Such a motor only strengthens the distrust of the flight crew in the aircraft... The aircraft must be lightened. The experience of mastering and performing tasks for combat use shows that the MIG-1-MIG-3 aircraft is designed for a pilot who has an I-16 piloting technique rating of at least "good". It is difficult for an average pilot to master the technique of piloting a MIG-1-MIG-3 aircraft and not without risk to his life.

The complexity of piloting the MIG-1-MIG-3 aircraft and the presence of manufacturing defects in it cause distrust of the aircraft, on the basis of which even old experienced fighter pilots are afraid to fly them.

The commander of the 9th mixed air division, Major General Chernykh, flew to the MIG-G! in March, he made two landings (1 landing bordered on a breakdown) and after that he did not fly a single time.

Major Oleinikov, inspector of fighter aircraft piloting technique of the Air Force of the district, took off and made 3 landings on a MIG-1 aircraft in March of this year, after that he did not fly on a MIG-1-MIG-3 aircraft. In a conversation with the flight crew, Oleinikov said: "I will wait for the Yak aircraft or some other." |

(The 9th Mixed Aviation Division was at the very edge of one of the "crushing counterattacks" against East Prussia - in the Bialystok ledge. It remained there, having lost, according to official data, 347 aircraft on the first day of the war. [Major General S .A. Chernykh was arrested and shot).

In addition to "childhood illnesses" and factory defects, the "Migs" also had a number of design flaws: "The disadvantage of the MiG-1 was unsatisfactory stability due to rear centering. The plane easily went into a spin and did not get out of it. Pilot fatigue was

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more than other planes. In the MiG-3, these and other shortcomings were largely eliminated, but some of its properties could not be overcome. The landing speed was high, at least 144 km / h, maneuverability was insufficient at low altitudes, the turn radius was large. "Mig" was difficult to pilot, especially when landing: a long and heavy "bomber" engine worsened visibility from the cockpit and longitudinal controllability.

Lieutenant General G.N. Zakharov, who commanded the 43rd Fighter Aviation Division, recalled: "Mig" was too heavy for a fighter. He did not forgive mistakes during piloting, he was designed only for a good pilot. The average pilot on the "flash" automatically passed into the category of the weak, and even the weak simply could not fly on it. And this is in comparison with the I-16, which was considered a "strict aircraft".

Finally, contrary to theoretical assumptions, the high-altitude "Mig" could not be used as a front-line fighter, since at altitudes up to 5000 m, where, as a rule, air battles took place, it was inferior to enemy vehicles in its flight qualities, and at high altitudes it - You didn't want to fight. Enemy bombers, solving the tasks of air support for ground forces, worked from a dive or decreased to increase the accuracy of the strike. The fighters covering them did the same. So the main events took place in the altitude range of 1000-4000 m, where the MiGs, which gave maximum speed at an altitude of 7800 m, could not realize their potentially magnificent capabilities. In addition, according to the observations of the enemy: "These aircraft easily caught fire when fired from all angles."

In November 194] a decision was made to curtail the production of the MiG-3 (stopped at 3220 units) and the AM-35A engine, the remaining vehicles were transferred to the air defense system, where they were used as a night fighter-interceptor.

There were practically no LaGG-3s in the Air Force of the western districts, in tangible quantities they began to arrive at

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front in July. For a fighter, the aircraft was heavy and clumsy in control, had an insufficient maximum flight speed, the value of which, moreover, decreased from series to series due to the deterioration of technological discipline at the factories and the increase in weight due to the installation of an armored back, two additional fuel tanks, radio stations. The quality of the finish of the outer surfaces of the airframe has sharply decreased, resulting in an increase in drag. Compared to the prototype, the maximum speed dropped from 603 km/h to 535 km/h, and the rate of climb almost halved, from 850 to 588 m/min. On a dive, the car vibrated strongly, on bends it lost altitude, fell into a tailspin. Not everything was all right with Klimov's engines. They continued to "spit" oil, and so successfully - at the sight and the cockpit canopy, which was already so cloudy THAT THE PILOTS of the "hawks" preferred to fly with open cockpits (losing another 20-40 km / h in speed). There were enough defects in the fighter's hydraulic system, the landing gear broke by itself: "The pilot comes to the car in the morning, and she is" on her knees.

On the other hand, the aircraft turned out to be durable, with sufficiently strong armament and exceptionally durable, it was almost impossible to set fire to it - thanks to the use of delta wood and equipment with a system for filling fuel tanks with neutral gas. Design and technological flaws were gradually eliminated, LaGG-3 was produced in large quantities, in the first period of the war it was one of the main types of front-line fighters.

For the better, in the opinion of the flight crew, the Yak-1 was different, capable of fighting all types of German aircraft. The fighter was relatively light, technologically advanced, with good aerodynamics, as they said then, "culturous", was unpretentious in maintenance, distinguished by ease of piloting and good controllability. He, too, was not devoid of design and technological flaws. The main one was

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fuel leaks from tanks, oil overheating and similar problems with the M-105P engine. There were also weak design of the pedals, the failure of the tail wheel tire, the mass removal of screws securing the hatches of the gas tanks, poor visibility of the fuel gauges and other shortcomings. As with other types of machines, due to moisture ingress, the plywood sheathing warped and peeled off. The plane did not have a radio station, a fuel indicator, an ammunition counter, and a system for "neutralizing" gas tanks (also located in the wings) - as the veterans recall, the Yak burned like a candle.

In short, all our "newest" fighters in 1941 were inferior to the "Messerschmitt" (as they will be inferior to him almost the entire war). It seems that they almost caught up with the Emil in terms of flight characteristics, but the main German fighter was already the BE-109E with a maximum speed of 620 km/h at an altitude of 5000 m, a rate of climb of 1300 m/min, armed with a 20 mm MS151 motor gun /20 with a rate of fire of 800 rounds / min and two synchronous machine guns MS17. Luftwaffe fighters were technically more advanced, had better vertical maneuverability, had high aerobatic qualities, in other words, they were more suitable for destroying aircraft in the air. The technical backwardness of Soviet aircraft was due, first of all, to the low quality of domestic engines and the lack of modern on-board equipment, a number of instruments and automatic devices that facilitated the work of the pilot. Thus, the Messer automatics regulated the temperature regime of the engine, the quality and quantity of the fuel mixture, the boost pressure, and the propeller pitch. "Hans" simply moved the gas sector, increasing or decreasing the engine speed, and the rest was done by automation, providing the optimal mode of the propeller group, unloading the pilot, allowing

he should pay more attention to the air situation and assess the rapidly changing situation. "Ivan" did everything by hand

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nuyu, forgetting in the heat of battle to switch this or that lever. losing meters, seconds, life to the enemy. From the technical description of the Yak-1 fighter: "Motor control consists of controlling the gas sector, altitude correctors, supercharger drive speeds, propeller regulator and oil injector. All cable management; control cables for normal gas, altitude correctors and supercharger speed switching are laid in 6x8 mm tubes stuffed with grease...". German engines were even more economical and 25-30% more economical than Soviet ones.

Each German aircraft was equipped with a transceiver radio station, while the vast majority of Soviet fighters did not have a radio station installed at all, and then only each [fifth aircraft, the rest — only with receivers — was equipped with transmitters. Hitler's generals did not think of an airplane without a radio station at all, Stalin's generals thought in unison with the Chief Aircraft Designer, who personally decided when, where and what to put. As a result, the control of a group of Soviet fighters in air combat was impossible in principle. The GKO decree on equipping all newly produced fighters with radio stations appeared only on August 20, 1942. After that, it was still necessary to teach and, according to General M.N. Zakharov, even to force the pilots to use a walkie-talkie: "The pilots are so accustomed to the fact that they do not hear anything, that the very information coming through the sound channels, and not through the visual ones, interfered with them, unbalanced, crushed their attention. Not so much a technical as a psychological transition of pilots to the continuous use of radio communications in the air was not immediately and not simply carried out, and this restructuring cost all aviation commanders a lot of work. But this happened - in the middle, rather even in the second half of the forty-three.

The German aircraft, made entirely of duralumin, did not swell the putty, plywood did not lag behind

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after the rains and the wings did not fall off after an energetic maneuver. The build quality and operational reliability of Soviet aircraft deteriorated even more after the men went to the front, and instead of them, teenagers and women came to the factories without special preparation.

"When I flew to the Kazan plant to receive planes," recalled the pawn pilot Timofey Punev, "I walked around the shops, I, frankly speaking, got scared. There is such a master at the lathe, and there are two boxes under his feet, otherwise he will not reach the lathe. The boys are chronically hungry. If a dove flew into the workshop, then that's it, work stopped, and hunting for game began. All flying pigeons fell into the soup, they were knocked down with slingshots. It was scraping in my soul, because when we dive, the car already rings. Who did you trust with your life? To the boys."

On the "best fighter of the Second World War", the Yak-3 model of 1943, the upper wing skin lagged behind in flight, "which led to the skin being torn off in the air and an inevitable catastrophe. According to the testimony of witnesses Colonel Engineer ZHUKOV and Major Engineer SALNIKOV, the percentage of aircraft with such defects was large and reached 40% of those received by the unit. As a result, flights on these aircraft were banned in 1945."

On December 24, 1941, after testing the captured Friedrich, the head of the Air Force Research Institute Fedorov wrote to the Deputy People's Commissar of the Aviation Industry A.S. Yakovlev: "Today we do not have a fighter equal to the Me-109F." To be honest, we didn't even have "tomorrow".

But as the clever Tupolev used to say: "To hell with him, let's take it in quantity!" They took it in quantity, only it took four years and the help of the allies (in 1942, Soviet pilots reported that in order to bring down one Messer, at least two Yaks were required. In fact

six of them were required, in any case, this was precisely the ratio of combat losses of German and Soviet fighter aviation).

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Therefore, the main burden of repulsing the German air attack fell on the I-16 and I-153 type aircraft, produced in 1938-1941 and remaining the main fighters of the Red Army Air Force. There were 3,804 such units in the Western theater of operations, plus 542 in the internal districts of the European part of the USSR. They were noticeably - more than 100 km/h - inferior to enemy fighters in speed, but they were numerous and well mastered in military units both in terms of piloting and maintenance.

In addition, victory in battle is achieved not only and not so much by the quality of technology, but to a greater extent by the quality of flight personnel capable of developing and implementing the most effective tactics of action in the fight against the enemy, the intelligence of the fighter, his desire to fight. With this approach, the U-2 turns into a "legendary" night bomber.

The Germans did not consider the I-16 easy prey: "The characteristics of the I-16 were quite good. While not as fast as the German planes, it was more manoeuvrable. I-16s could successfully operate against German bombers." The combat losses of the pilots who fought on the I-153 in the first two months of the war were lower than on the new Yak-1, Mig-3, LaGTG-3 fighters. It got to the point that until the autumn of 1942, the Kremlin repeatedly raised the issue of resuming the production of Polikarpov machines.

The authors of the Soviet manual "Fighter Aviation Tactics", published in 1943, did not complain about "outdated equipment", taught how to use it correctly, recommended taking into account their advantages and knowing the enemy's vulnerabilities, using the element of surprise and using cunning:

"The review is the weak point of the Me-109 fighter. Not without reason, this aircraft is considered the most "blind" of all types of fighters. The Me-109 pilot cannot see the enemy who has entered the tail ...

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The I-16 aircraft is, of course, inferior to the Me-109 in speed, but in terms of maneuver it is better than the Me-109. The I-16 cannot impose a fight on a "Messer" who does not want to fight, but the I-16 is able to deal perfectly with an enemy going to battle. I-16 Me-109 attacks can always dodge, if only the I-16 pilot noticed the enemy in time. Usually, the battle on the I-16 is fought last in frontal attacks. For the I-16, as well as for all types of fighters, the advantage in height is of great importance. When attacking the Me-109 from the front hemisphere from above, the pilot of the latter is not protected by anything. The I-16, which is on top, can attack the Me-109 from behind by descending, so it is absolutely necessary for the I-16 group to have an excess and separation in height so that at least one pair is on top.

The I-153 aircraft should fight in the same way as the I-16 aircraft, the excellent maneuverability of the Chaika makes it invulnerable to the clumsy Me-109, if only the Chaika pilot has a good look around. The I-153 can always wriggle out of attack and meet the enemy with head-on fire. At the same time, it often turns out that the I-153 can fire at the Me-109, but it does not have time to turn on the Chaika.

In the end, "correct tactics minimize the shortcomings of technology and expose its merits", and "A pilot's actions in aerial combat are based on his ingenuity."

Well, besides everything else, we had "the most advanced in the world", verified by the unmistakable Marxist method, military theory, which, in the person of "one of the founders of the Soviet operational art of the Air Force" A.N. Lapchinsky stated:

"In addition to the main favorable data for us in the balance of forces, it is necessary to add also the qualitative class homogeneity of the personnel of the Red Air Force. Aviation, as the highest manifestation of technology, in all capitalist countries is fascisized in its

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top. The air force, more than all other technical troops, relies on "craftsmanship." The main contradiction between the working base and the fascist elite is especially clearly manifested precisely in aviation. In the current moment of exacerbation of class contradictions throughout the world, the fate of fascist pilots flying in machines, preparing for flight with the technical base in which the fascist cannot have confidence, is especially unenviable. The war cannot fail to reveal this contradiction in all its fullness in the very essence of the air weapons of the bourgeois countries.

That is, the "fascist" flies and is tormented by black thoughts, didn't the technicians plant a wrench in the engine, didn't they pour sugar into the gas tank?

While: "The air fighter of the Red Army, due to the class solidarity of our Red Army, does not stand in conflict with his earthly base and does not experience the fears that are characteristic of our class enemy. But the calmness communicated to the air fighter by confidence in his moral and material base is a factor of the utmost importance.

CHAPTER 2

Discussing aspects of the theory of air warfare, of course, one cannot ignore the colorful figure of Giulio Due, who was the first in the world to be able to properly assess the enormous capabilities of combat aviation. In the 1920s, this Italian general expressed his revolutionary views in numerous publications, arguing that only gaining air supremacy could ensure victory in future military clashes.

To have dominance in the air, Douai formulated, "means to be able to take offensive actions against the enemy of precisely this magnitude, surpassing all others that the human mind can imagine; it means being able to cut off the enemy land army and navy from their bases, depriving them of the opportunity not only to fight, but also to live, it means to protect their territory and their seas from such attacks in a sure and unconditional way; to keep its army and navy in combat-ready condition; to allow one's country to live and work in complete peace, that means to win."

The fate of one who cannot secure air supremacy for himself is unenviable - "to remain in complete dependence on the will of the enemy, without any air protection, to be subject to the most powerful attacks that the enemy will be able to make everywhere with the greatest ease and minimum risk; Briefly speaking,

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it means to be defeated and forced to accept the conditions that the enemy wants to put.

It followed from this that the former traditional means of armed struggle would no longer be able to play the main role and would be supplanted by the air fleet as the decisive weapon of war. Since, firstly, aviation is an exclusively offensive weapon; secondly, ground forces and the navy can only inflict indirect damage on the enemy, the main blow is delivered by aviation, destroying industry and manpower; thirdly, in order to achieve success, there is no need to capture the territory and objects of the enemy, the main thing is to break his will at the front and in the rear:

"What could a land army do if its lines of communication were cut off, its stores burned down, and its industrial and supply centers destroyed? What could the navy do if it were no longer safe in its ports, if its bases were burned and its arsenals and transport ships destroyed? How could a country work and live under an eternal thunderstorm, overwhelmed by terrible nightmares of inevitable and universal destruction?"

For it must be borne in mind that an air attack is directed against targets not only with the least material resistance, but also with the least moral resistance. If a regiment is still able to resist in a destroyed trench, having lost two-thirds of its composition, then the whole workshop sees its work interrupted due to the destruction of one group of machine tools and scatters at the slightest loss. |

It is clear that the basis of the air army of the future should be made up of bomber units, which "should have maximum power corresponding to the volume of the tasks ahead and providing results of the proper value." In addition to bomb carriers, it was envisaged that there should be a minimum of "air combat units" that would counter enemy air forces. At the same time, air combat aircraft

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were to be not light single-engine fighters, but multi-seat and well-armed "air cruisers" capable of providing reliable cover for bomber formations throughout their entire range of action. Ideally, one should create a universal fighter-bomber that performs the function of a "single aircraft".

On the basis of these arguments, the general proposed creating an air force only for offensive operations, refusing to develop not only auxiliary aviation and air defense, but also the ground forces and navy.

Douai thus radically proposed moving the attack to the air. Douai saw the main task of the coming revolution in military affairs as replacing the habitual occupation of the enemy's strategically important areas with the total destruction of those industries that support the actions of his armed forces, thereby forcing the enemy to capitulate without using neither the army nor the navy. Actually, the ground forces are needed only to accept the surrender of an already defeated and demoralized enemy.

Shortly before his death, the guru of total air warfare presciently warned:

"Victory smiles on those who anticipate changes in the forms of war, and not on those who adapt to changes. In the present period of a sharp transition from one form to another completely different from it, the one who first boldly and decisively rushes along the new path will have an inestimable advantage, since he will enjoy all the advantages that the new form gives in comparison. with the old..."

Anyone who is not prepared for a new way of waging war will not have time not only to prepare, but also to get used to the new environment.

Whoever is the first to be ready for a new war will be able to win in a short time, but also with minimal means and minimal victims.

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The "extremist" theory of the Italian general caused a heated discussion in military circles, giving rise to both ardent adherents and implacable opponents. His theory was not adopted in any of the countries, but in general it contributed to the growth of interest in bomber aircraft and the belief in the possibility of its more effective application. the greatest

the idea of the general gained popularity in the UK and the USA (but only the Americans managed to bring it to life).

While the winners of the First World War were resting on their laurels, the generals of "humiliated" and disarmed Germany did not leave the thought of revenge for a minute. They secretly and fruitfully experimented with the latest types of weapons (in which the Soviet Union provided them with invaluable assistance), picking up the keys to a future victory. Among them were fans of Douai's theory, for example, the future Chief of Staff of the Air Force, General Walter Wefer, or the commander of the "Training Squadron" Robert Knaus. For the small but highly professional Reichs Vera, a theory of mobile strategy was developed. General Seeckt, the head of the land forces, wrote in 1921: "All future methods of war seem to be connected with the use of mobile armies, relatively small, but of high quality and operating effectively with air support." In order not to waste the talent of German engineers, a significant part of the firms transferred their activities abroad: to Switzerland, Denmark, Sweden, the USSR, Holland. There it was possible to easily design aircraft, guns, submarines, invent chemical warfare agents.

The ideas of the Führer of the National Socialist Party, who was striving for power - about the revenge of France, about the living space, about the great Reich - were met with understanding in the soul of the German people. Despite the fact that Hitler did not hide his aggressiveness, stating more than once that all his actions are dictated by hatred, and there is no other way to resolve the German question than war: "There is only

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to the path of violence, which has never been without risk.

When the Nazis came to power at the beginning of 1933, 3,200 people were employed in the aviation industry, exactly a year later - 16,000 at seven aircraft and four engine-building plants. Monthly output has doubled and reached 72 machines. Another two million workers worked to expand the network of airfields, control towers, warehouses and hangars.

In August 1934, the Führer of the Party became the Führer of the German Nation and moved from words to deeds. Article after article [Germany abandoned the restrictions of the Treaty of Versailles, and on March 16, 1935, Hitler announced the introduction of universal military service. A week earlier, the existence of the Luftwaffe had been officially recognized. Under the slogan "Our cause is just!" The Germans began preparing for war.

"War serves the cause of the preservation of the nation and state or ensures their historical future," the OKW memorandum said. This lofty moral goal gives the war its total character and serves as its moral justification. It puts war above a purely political act and above a military duel because of the economic BENEFITS.

Hitler and his commanders understood the futility of confrontation on two fronts. This means that the opponents had to be defeated one by one, in the shortest possible time with minimal material damage, in order to break their will to resist with sudden powerful blows. Germany's economic possibilities simply would not have allowed her a long war with the great powers.

The way out of this situation could be the strategy of "quick war" OR "war of destruction", which should ensure the defeat of any adversary even before he is able to fully develop his military and economic potential. Thus, in Berlin they relied on the most effective

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the use of available economic opportunities to prepare the armed forces for individual lightning campaigns, the pauses between which made it possible to accumulate new reserves for the next strike. The main instruments of the "blitzkrieg" were the armored troops and the air force. Tank wedges and pincers were supposed to dismember and encircle enemy formations, aviation - from the first days to gain air supremacy, destroy railway junctions, completely isolate the area of decisive hostilities from the rear of the enemy, and provide direct support to their troops on the battlefield.

The Fuhrer rejected Douai's ideas. First, to conquer "living space" he needed a massive invading army, supported by a powerful air fleet; secondly, there were not enough material resources and time to create strategic aviation. Therefore, the strategic bombardment of enemy territory was not envisaged by the "scenario". Aviation had to interact on the battlefield with tank units, crushing enemy troops, and its industrial centers had to be captured, not destroyed. British military theorist J. Fuller noted:

"Hitler's goal was to break the enemy's will to fight in the shortest possible time with minimal damage to material values. His tactics were based on the use of a propaganda offensive and a subsequent lightning strike. Hitler revised Douai's theory from the point of view of the sequence of actions: it is necessary to undermine the morale of the civilian population of the enemy before, and not after the outbreak of hostilities, not physically, but intellectually. Hitler said: "What is war but the use of cunning, deceit, delusions, blows and surprises? There is a deeper strategy - war with intelligent weapons, and why should I demoralize the enemy with military means, if I can achieve the same better and cheaper in other ways.

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The main document that outlined the views on the role, tasks and methods of using aviation was the Air War Manual compiled by the Air Force headquarters in 1936. In this document, the air force was considered as a branch of the armed forces capable of independently solving operational and strategic tasks and providing direct support to the ground army and navy. The main attention was paid to the issues of independent actions of aviation, but at the same time it was noted that the most important goals and tasks for it "should be established on the basis of careful consideration of all military, political and economic factors".

The Luftwaffe, the manual said, is the most mobile and fastest instrument of war, capable of decisively contributing to the implementation of plans for crushing operations and campaigns. Their sudden use at the very beginning of a war can have a decisive influence on its outcome. The Air Force gives the command the opportunity to create a strike group at lightning speed and unexpectedly for the enemy, as well as to shift the direction of the main attack.

The most important prerequisite for solving all the tasks facing the air force was considered to be the destruction or suppression of enemy aircraft, the conquest of air supremacy. The fight against enemy aircraft was supposed to be carried out, first of all, by delivering sudden strikes on airfields. The use of fighters for air combat was recognized as a less effective way to fight for air supremacy.

The views of the land command on the role of aviation were set out in the field manual. In it, the air force was seen as a means of gaining air supremacy in decisive directions in order to create the necessary conditions to support the rapid advance of field armies.

In accordance with the adopted doctrine, when building the German Air Force, priority was given to front-line bombers.

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mid-range pilots capable of working closely with ground forces. Fighters were also widely used to support ground units. And almost a quarter of the combat vehicles were reconnaissance aircraft and fire spotters.

Bolshevism has been aggressive since its birth. Still in 1916 V.I. Lenin, having substantiated the possibility of the victory of the revolution in a single country, at the same time concluded that the proletariat of this country would have to fight the whole world of "unbridled imperialism", because "the free unification of nations in socialism is impossible without the stubborn struggle of the socialist republics with backward states.

That is why "Soviet military thought unanimously rejected Douhet's anti-scientific and adventurous aviation theory": in the eyes of Soviet "military thinkers", the heresy of the Italian consisted not in an excessive enthusiasm for the idea of a total air war, but in the denial of the need to occupy a defeated enemy, which means that and the need for a mass army in favor of a compact, mobile, professional military. The Red colonialists, who were preparing to wage a "class war with broad maneuverability" against the capitalist encirclement, were not interested in such a victory. Their goal was not to achieve any political, economic, or territorial concessions from unfriendly neighbors, but to occupy and completely sovietize the occupied areas, join them "to the socialist coalition," and, ultimately, the worldwide victory of "labor over capital." ". Moreover, in accordance with communist morality, any war that the Bolsheviks get involved in, even with the Zulus, will be sacred and just.

People's Commissar for Military and Naval Affairs of the USSR M.V. Frunze, who dreamed of creating a comprehensive theory of proletarian military art, in the midst of devastation and famine prophesied: "We will have such an army that the world

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gasp! To create such an army, unconditional militarization of the entire life of the state is necessary; "the energy and will of the country should be directed to the creation and strengthening of our military power"; the consciousness of every inhabitant "should be imbued with the idea that our country is still in the position of a besieged fortress and will be in it as long as capital reigns in the world."

In 1926, the Chief of Staff of the Red Army M.N. Tukhachevsky, speaking with a report at the First All-Union Congress of the Military Scientific Society, brought to the attention of the audience:

"Our Soviet Union is not a vague coalition of capitalist states, but we, too, will expand into a socialist coalition when new socialist revolutions break out or when we have to occupy this or that area under the dominion of capital ...

After all, each territory occupied by us is, after occupation, already Soviet territory, where the power of the workers and peasants will be exercised. In this way we expand our territory and at the same time expand not only our basis for war, but also the socialist basis in general.

Head of the Aviation Department of the Frunze Military Academy Brigade Commander A.N. Lapchinsky in his "fundamental work" with the characteristic title "Air Army" wrote:

"It is impossible to imagine a future big war in such a way that an air army of the Douai type will wage an air war, and the ground forces will wait for the moment when victory in this air war will be achieved completely and when the participation of the ground forces becomes superfluous, and they can safely go home.

No matter how actively aviation operates in the position of the enemy, it cannot occupy an inch of enemy territory, it cannot capture a single prisoner, not a single rifle.

or guns. It is clear, of course, that it is in no way capable of an offensive in the sense in which we understand an infantry offensive. For

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In order for the damage inflicted on the enemy by aircraft to acquire offensive or defensive significance, offensive and defensive actions on the ground are necessary ...

Modern armies of millions, equipped with powerful equipment, are not created in order to indulge in contemplation in the trenches and then be demobilized. It cannot be, and it never will be. The decision in the war will be reached in a series of grandiose air-land battles, and the threat to the given political existence of the enemy will not be the air fleet, which has won absolute air supremacy, but the land army, air force and navy. This concept is somewhat more interesting than the fables of the Italian general and his followers...

Since there is a massive offensive army, the main task of the air army is to help advance this army forward, for which all forces must be concentrated.

But on the other hand, another Soviet theorist and ardent supporter of the creation of strategic bomber aviation in the Soviet Union, Deputy Head of the Red Army Air Force V.V. Khripin:

"Acute disputes, the most contradictory assessments of Douai's theory testify, first of all, to the fact that this theory is a truly outstanding and significant phenomenon in the field of military thought. A number of separate provisions of his generally untenable conception are of the greatest practical interest for us as well. It would be wrong to discard a number of Douai's valuable thoughts just because the fundamental basis of his entire concept is incorrect and unacceptable.

That is, something from the deceased could still be borrowed and adopted, for example, the idea of creating powerful air armies, conducting independent strategic operations and gaining air supremacy. Komkor V.V. Khripin and brigade commander E.I. Tatarchenko in his work "Air War" Delhi

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whether the Air Force into three main groups: air armies, or "independent air forces", army aviation, naval aviation:

"The independent air force is the main part of the air force, consisting of the most powerful formations of aircraft (mainly bombers) and of formations and institutions that ensure the combat activity of the core of the combat forces (units and formations of other purposes: air combat, assault wikis, reconnaissance aircraft, transport and landing aircraft, communications aircraft, etc.). The independent air force constitutes the main strike force of the air fleet and forms the main maneuver grouping, which performs the main tasks in an air war and, if necessary, can provide support to auxiliary forces performing partial tasks. The main purpose of independent air forces is the destruction of enemy air forces, operations against the rear of the enemy, airborne assaults, and support for land and sea operations. They can participate in operations of all kinds, performing the main task or ensuring its implementation. They are usually assigned only to operations of particular importance in air, sea and land warfare.

Both categories of service air forces are allocated in the minimum, strictly necessary number to perform the tasks of servicing the land and sea armed forces ...

Among the main objects of destruction from the air by large masses of long-range aviation, aviation, chemical and artillery plants, bases and warehouses are especially distinguished,

military ports, energy centers, the most important areas of the extractive industry and, finally, large cities ...

Air superiority (superiority) achieved is the best air support for operations.

The matter was not limited to simple theorizing: the quantitative and qualitative growth of the USSR Air Force in the 30s

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years went on while maintaining the dominant role of bomber aviation, especially heavy bomber aviation, which was faced with the task of conducting large-scale air operations in the initial period of the war.

In the summer of 1932, the Chief of Staff of the Red Army A.I. Yegorov presented to the Revolutionary Military Council theses on the new operational and tactical possibilities that appeared in connection with the technical reconstruction of the Red Army. From the Air Force section:

"1. Our air fleet has come close to a new stage in its development, which, on the basis of its increasing combat significance, requires new starting points in the use of both individual types of aviation and the Air Force as a whole.

2. In the first period of the war, all available combat aviation (including naval and military aviation) is massed for independent actions to exercise air supremacy, disorganize the rear, disrupt mobilization, concentrate the army and destroy enemy naval forces.

The basic principles of the combat use of massive aviation should pursue the solution of the following tasks by the air forces of the Red Army:

a) have air supremacy both for attack and for the direct defense of the territory of the Union, and especially the economically, politically and militarily important regions, regions and centers.

6) In the event of an attack on the USSR by any of the capitalist powers or a bloc of such states, to radically disrupt the mobilization and concentration of their army and disrupt the economic life of entire regions, and primarily in relation to the production of military values.

c) Defeat and destroy, in cooperation with the naval forces, any enemy fleet that will operate in the water basins of the seas adjacent to the Soviet Union.

d) Drop airborne assault troops in the most revolutionary areas to organize and develop an armed

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fighting behind enemy lines and on operationally advantageous sectors of the enemy's territory"

3. In the course of a war, all combat light aviation becomes subordinate to the field command of the armies and fronts and interacts with the field forces. Combat heavy aviation, as a rule, remains in the hands of the High Command to solve independent tasks, like a long-range air fleet, to work against the political and economic bases of the enemy.

Aviation must be used massively, unexpectedly for the enemy, resolutely, in close cooperation of all branches with each other.

These provisions were reflected in the instructions "Temporary instructions for conducting deep combat" developed by the Headquarters of the Red Army.

At the same time, optimal scenarios for entering the war were being worked out. In October 1933, the teacher of the Military Academy of the General Staff E.A. Shilovsky in his article "The Initial Period of the War" wrote:

"Strategic and operational doctrines of our potential adversaries assign a large place to the independent actions of the air forces from the very first moments of the outbreak of hostilities.

The purpose of these actions is to disrupt the mobilization and concentration of the enemy, to suppress his air forces, to operate against industrial centers, large railway junctions, power plants, political centers, etc. Until the ground armies are deployed, the bulk of aviation, according to the views of most foreign authors, unites in the hands of the main and frontal commands and delivers powerful concentrated strikes to a great depth.

Broad air war becomes the order of the day. The imperialists strive from the first moments of the outbreak of war to carry out air incursions at large radii (500 km or more, depending on the location of the objects for action) ...

New types of troops and new technical means (aviation, motorized mechanized units, mechanized cavalry and

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other means of destruction) that can be put into action from the first moments of the war, are such powerful weapons and can shock the enemy so much that the result of their actions will have a decisive effect on the course of subsequent operations and, perhaps, even on the outcome of the war. . Therefore, the operations of the initial period are not of secondary importance, but of very important and responsible importance. Therefore, it is possible and must boldly use the new types of troops in full from the very beginning of the war for a swift offensive and strike, while the enemy troops have not yet assembled.

According to this scheme, the bulk of aviation, united in the hands of the main and front command, inflicts deep and powerful strikes, lands airborne assault forces, disrupts mobilization and concentration, and shakes the rear of the country.

Cavalry and motorized mechanized formations invade to the maximum depth, disorganize the deployment of the army, force it to be carried to the rear of the country, producing it under adverse conditions, capture important lines and areas, destroy warehouses and command centers, together with the landing troops create an extremely tense situation behind enemy lines .

Behind this first echelon, which invades the territory of the enemy, the land army is deployed, but not along the state border, but on the captured lines, and, since the enemy's army and country are already demoralized, it completes its defeat with its rapid offensive. .

Let us not exaggerate the power of Soviet theoretical thought. The author took all these "schemes of tomorrow" from a review of foreign literature, but they fell on fertile ground and formed the basis of the theory of the "red blitzkrieg":

"According to the views of some French authors, the following possible scheme of operations of the initial period in the Franco-German theater emerges:

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a) Rapid invasion of enemy territory by a covering army preceded and supported by air divisions. The use of aviation is conceived not only for bombing operations, but also for "jumping over the front" through the production of tactical and operational landings.

6) This invasion has the task of preventing mobilization in the border zone, hindering mobilization throughout the enemy's country and preventing the concentration of his army.

Further, to occupy a line convenient both for the development of a subsequent offensive deep into the enemy country and for securing one's own territory, and hold this line until the main forces of the mobilized mass army are concentrated.

c) Mobilization and concentration of the covering army on the border is carried out a few days before the start of hostilities. With the outbreak of hostilities, 2-3 cavalry corps with motorized units invade enemy territory, supported by air divisions. Shooting down the covering troops, the invading units advance by the end of the first day to a distance of up to 100 km from the state border.

d) Other air divisions bombard communication centers and important centers in the enemy rear (300-500 km) ...

g) In the future, battles are fought to gain time until the main forces of the mobilized army are concentrated ... ".

"The views of some French authors" - covering armies, ensuring the mobilization and deployment of their forces by invading adjacent territory, mechanized and cavalry corps, concentrated at the very borders in readiness to capture "important lines", air divisions, aimed "from the very first days of the war to gain air supremacy," almost everything was reflected in the plans for the strategic deployment of the Armed Forces of the USSR. From here there was only one

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a step to the conclusion that the war must be started not with a formal declaration, but with a sudden and crushing air strike. The head of the Soviet Air Force, Yakov Alksnis, directly pointed out: "It seems very advantageous to take the initiative and be the first to attack the enemy. Those who have shown the initiative by attacking the airfields and hangars of their enemy can then count on air supremacy.

(The military-political leadership of France ignored the "views of some authors" and preferred to swell three billion francs into the impregnable fortifications of the "Maginot Line". In early 1939, General Chauvinot's book was published with the characteristic title "Is an invasion still possible?"; In the preface to The Hero of Verdun, the aged Marshal A. Pétain expressed the conviction that tanks and aircraft do not change the nature of war and that the main condition for the security of France is a solid front reinforced by fortifications. in the pre-war period called "On an inclined plane".)

There were also some disagreements in the ranks of Soviet military theorists, which was allowed until the Kremlin formed its own opinion about the goals and plans for a future war.

For example, Lapchinsky recommended the Air Force not to get involved in independent operations, but to focus, first of all, on ensuring the successful offensive of ground forces:

"Attempts to consider the air force as an independent element of the armed forces of the country are usually associated with the initial period of the war. During this period, they expect to wage an independent air war, which has the goal of destroying political and industrial

centers, by disrupting mobilization, by sinking the navy in its bases, by destroying ports and shipyards, by blowing up firearms depots, destroying arsenals, various factories, etc. prevent the enemy from even starting military operations on

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land and sea and thus bring him to his knees. The only question is whether the necessary means are currently available for independent air operations ...

If there are enough forces to render, first of all, assistance in advancing the ground front, and there is still a surplus of forces, then it will be very expedient to bombard enemy air rear facilities. If there are not enough forces to solve these two tasks, the most important task will be combat work in operational-tactical connection with the actions of the troops, and not the defeat of the deep aviation rear, i.e. the most important task will be air battles and the defeat of enemy airfields, i.e. gaining temporary and local superiority in the air, achieved through the massive use of large aviation forces in the direction of the main attack of the ground forces ...

Since a war of maneuver is being waged, air-ground battles must be won, which begin in the air and end on the ground, which requires the concentration of all air forces at a given time on a given front...

The farther aviation breaks away from its troops, the more objects that are important for countering ground forces will be unaffected. But in this space, over which aviation flies, everything that an earthly enemy needs for victory can be concentrated, and there may be cases when it is necessary to compare at the same time the cost of destruction caused to the enemy by aviation in his deep rear, with the price of victory achieved by the enemy on the ground ...

Operational communication with the actions of the earth troops does not provide for bombardment in general, but for the bombardment of objects chosen expediently.

And defeats at the front - where without Marxism - will lead to the disintegration of the "class heterogeneous bourgeois army", demoralize and revolutionize its rear.

With such a formulation of the question, the main objects of attacks for aviation are no longer cities and factories, but enemy troops - tanks, artillery pieces, cars.

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transport, concentrations of infantry, and the main striking force is not strategic, but front-line bombers and attack aircraft capable of operating effectively on the battlefield. The bombardment of cities is generally inexpedient from a military point of view and unacceptable politically, since the foreign proletariat "will not understand us" and will not support us: "Objects of military importance in a city located deep behind enemy lines cannot be reached with bombs; Cities should be bombed just like cities, if there are sufficient funds for this. If, however, there are no sufficient means for waging a merciless air war, there must be sufficient grounds for bombarding a city. The basis for this can be found in the actions of the enemy. If the enemy exerts a moral influence on the population by bombarding our cities, the answer may be a penalty bombardment of his cities. By all possible means (radio, leaflets, pennants) the reason for such punitive bombardment must be explained to the general population in order to create an appropriate public opinion. It is clear that with such bombardment the goal is not of a material, but of a moral order.

Therefore, aviation units and formations must be subordinate to the ground command and act in its interests:

"The command must be united. Air divisions, corps and armies must be subordinated to the commanders of corps, armies and fronts, respectively, as integral parts of the whole. No division of command in war has ever been useful. And since the air forces are called upon to play an extremely significant role in operations, it is necessary that the command be prepared for a unified air-ground leadership of unified air-ground operations, which cannot but affect the organization of a unified higher military education.

Military targets, as we have seen, are relatively small and widely scattered. These goals do not require

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the use of large battle formations. The ground command is interested in hitting these targets, and the distribution of aviation among the levels of the ground command does not at all mean a dispersion of air forces.

Air armies (large formations) should be at the disposal of the high command, which distributes them along the fronts depending on where it seeks solutions.

The air divisions, on the other hand, should be a regular part of every rifle corps, every cavalry corps, and every large mechanized unit, because, wherever these corps and units work, they always need the direct assistance of their subordinate aviation."

In any case, the main combat vehicle of the aviation troops is a bomber, "carrying dynamite to the ground", preventing the "movement, supply and control of the enemy", hitting enemy columns in tactical and operational depth, destroying headquarters, warehouses, aircraft at enemy airfields, destroying railway stations, preventing any maneuver.

Ground attack aircraft, by systematic raids at low altitudes, suppress troops and technical equipment "located openly and massively" on the battlefield and on approaches to it, block the enemy air force at airfields, destroy suitable reserves, disrupt the supply of ammunition, etc.

Fighters must conduct air combat, ensuring the work of their bombers and hindering the actions of enemy bombers, fight against enemy fighter and reconnaissance aircraft: thereby guaranteeing the success of the air operation as a whole. Fighter support means, therefore, air combat.

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Great importance was attached to aerial reconnaissance, which was tasked with: revealing the enemy's intentions by tracking the location and movements of his troops, observing the "organization of his terrain", providing accurate and operational information to his ground units and bomber aircraft (as well as carrying out - exercise control over their activities and performance).

On December 30, 1936, the People's Commissar of Defense approved the Provisional Field Charter of the Red Army (PU-36). For the first time, it spoke about aviation formations operating, in addition to independent operations, also in close operational-tactical connection with combined arms formations. The charter considered the tasks of assault, fighter, light bomber and military aviation.

The issues of aviation management and the organization of its close interaction with other branches of the military were also not forgotten. For example, in the book of the senior teacher of the Military Academy P.P. Ionova wrote:

“When organizing the struggle for air supremacy over the battlefield, it is necessary to provide for the transfer of the command post of the commander of a fighter aviation formation to the command post of one of the corps commanders operating in the main direction. This is necessary so that the commander of a fighter formation can himself observe the air situation in the area of the battlefield and make a timely decision on the introduction of new fighter units into battle. In addition, for complete observation of the air situation, it is necessary to have special observers at the command posts of neighboring corps.

The command post of the commander of a fighter aviation formation must have radio communication both with the airfields of fighter aviation and with the command of aviation units in the air ...

Between fighters in the air over the battlefield, there must be radio communication with the main airfield of the unit or formation to which they belong.

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these fighters. They should periodically radio about the air situation at the front and, if necessary, radio about support.

What can I say, the theory was advanced and, importantly, supported by material possibilities. And on paper, everything came out smoothly. It was not in vain that the political instructors were talking:

Do not disturb our peace - we will plant a knife.

CHAPTER 3

After the Civil War, the main tactical unit of the Soviet aviation was the air squadron. According to the peacetime states introduced on September 12, 1922, the aviation detachment had 8 active and 2-4 spare aircraft. Three detachments were reduced to a squadron, which was a military unit, two squadrons - to a squadron. There were also separate detachments and squadrons. All air units on the territory of the military district were subordinate to the assistant district commander for aviation. There were also parts of the central subordination that performed special functions.

All aviation was divided into army and corps. The first included fighter and assault squadrons and detachments, the second - reconnaissance. Bomber aviation was separated into an independent branch of the air force in 1924, when the new reorganization provided for the formation of light bomber and heavy bomber squadrons. According to the "schedule" of September 16, the primary unit of the Red Army Air Force was a flight of three aircraft. The fighter aviation detachment consisted of three units, the reconnaissance and light bomber detachment consisted of two. The squadron of heavy bombers had three aircraft. In May 1925, aviation detachments of 6, 8 and 12 vehicles were introduced into the staff of rifle corps and cavalry divisions, intended for close reconnaissance and maintenance of artillery.

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Detachments were united in squadrons. The fighter squadron consisted of three squadrons of three flights each — 46 aircraft, 12 of which were spares. The light bomber and reconnaissance squadrons included three squadrons each and consisted of 31 aircraft, including 12 spares. There were two squadrons in the heavy bombardment squadron - a total of 6 aircraft; due to the lack of equipment, by the end of 1925, it was possible to organize one Heavy Squadron, which actually consisted of one detachment AND a “training cell”, equipped with different

"imported" cars. Over 60% of the reconnaissance and bombing fleet at that time were De Havillands and their Soviet counterparts R-1 and R-2. About 200 airplanes served in the fighters, including 112 O.KhG Fokkers and 17 I-2 aircraft.

On September 15, 1926, by the decision of the Revolutionary Military Council, the RKKVF was renamed the Air Force of the Workers' and Peasants' Red Army.

Since 1927, the creation of air brigades began. Initially, these were territorial formations, to which all air units in a certain territory, plus training units, parks, workshops and warehouses, were subordinate. A brigade could include two or three squadrons for various purposes and up to a dozen detachments.

By this time, a fairly clear structure of the Air Force had developed. The directorates of the Air Force in Moscow were subordinate to the directorates in the districts. The Red Banner Caucasian Army, later reorganized into the North Caucasian and Transcaucasian military districts, and the special Far Eastern Army, created in 1928, had their own air forces as district air forces. Similarly, the Air Force included the air forces of the seas, operationally subordinate to the command of the respective fleets. Brigades, separate squadrons and detachments were subordinate to the Air Force directorates of the districts and structural units equated to them.

With the establishment of mass production of heavy bombers, the USSR was the first in the world to start creating strategic aviation - in full accordance with the "reactionary" doctrine of Douai. On January 1, 1930 in

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The Red Army Air Force had 33 foreign-made heavy aircraft and only two TB-1s. Exactly one year later, there were already 155 domestic bomb carriers in service. The number of heavy aircraft in the squadron was first brought to eight, in 1932 to 12 aircraft. The quantitative and qualitative growth of the Soviet Air Force increasingly acquired a "bomber bias".

Gradually, Soviet factories increased the production of aircraft of various types, which made it possible both to form new aviation units and formations, and to replenish existing ones.

On March 23, 1932, a decree of the Revolutionary Military Council of the USSR "On the Fundamentals of the Organization of the Air Force of the Red Army" was issued, noting that since the recent changes in the Air Force "transfer them from auxiliary weapons, which they essentially occupied until now for the time being, to the role of an independent branch of the armed forces", it is required to divide the air forces in accordance with the strategic and operational-tactical designation into military, army and front-line aviation.

The military aviation consisted of separate squadrons, one for each rifle, mechanized and cavalry corps. The squadrons were armed with light aircraft for reconnaissance, communications and artillery fire correction. Army aviation consisted of separate mixed aviation formations that were part of the combined arms armies. Frontal aviation was subordinate to the command of the military districts. Heavy bomber aviation was considered as a means of the High Command.

In accordance with the tasks, flight performance and armament, military aviation was divided into fighter, bomber, attack and reconnaissance. Accordingly, aviation brigades gradually became specialized, equipped with homogeneous equipment. Mixed air brigades have also been preserved. The brigade consisted of two to five squadrons.

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At the beginning of 1932, the formation of heavy bomber aviation brigades began. Such a brigade included four squadrons of TB-1s or TB-3s that replaced them (48 vehicles),

a squadron of R-6 escort cruisers (12 aircraft) and a squadron of I-5 fighters (31 units) to cover the airfield and escort near the front line. In 1933, for ease of control and the possibility of massive use, these brigades "in pairs" began to be combined into heavy bomber air corps, to which one or two brigades of high-speed SB bombers were then added. Within a short time, five corps were formed, designed to carry out independent strategic and major operational-tactical tasks.

The Luftwaffe didn't even exist in 1934. In France, only the four-engine Farman E221 was tested, and in five years it will be multiplied in about 70 copies. In England, the Hayworth twin-engine biplane with a metal frame and fabric covering was considered the main heavy bomber. In general, in the first half of the 1930s, the political and social life of the "decaying" West, dreaming of forgetting the world massacre like a nightmare, experiencing a severe economic upheaval, proceeded under the flag of general disarmament. Heavy bombers, along with chemical and bacteriological weapons, were supposed to be banned by some international convention, or transferred to the exclusive disposal of the League of Nations to punish potential aggressors.

And over Red Square, twice a year, to the "exciting tune of the Internationale," one and a half hundred bomb carriers sailed, which simply did not have a real enemy in the air. More than 320 TB-3s took part in the maneuvers of the Belarusian Military District. Deputy Commissar of Defense M.N. Tukhachevsky together with the commander of the BVO I.P. Uborevich in a letter addressed to K.E. Voroshilov was offered, taking into account the possibilities of the Soviet aviation industry, to have in the Red Army by 1935

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up to 15 thousand combat aircraft. From the order of the Revolutionary Military Council No.-0101 dated | December 1933:

"For heavy aviation, the main task is to have training in the performance of independent air operations, for which to master the skills to perform long-range bomber flights by units and formations, day and night, in different meteorological conditions, both above the ground and above the water. Work out the tactics of self-defense against an air attack of the enemy. Conduct training on interaction with cruisers and light bombers during these flights.

Master cloud bombing by timing and NIGHT.

To master the interaction with the Navy in the fight against the fleet and landing forces of the enemy, in battle near their own base, on approaches to it on the high seas and at the enemy base.

To master the technique and tactics of conducting combat formations with an air enemy on the way to the target and back.

When in the summer of 1934 three units of TB-3 made "friendly visits" to the capitals of European states, this made a strong impression. The world, one might say, gasped. One of the British reporters wrote: "While Europe is arguing about the value of Douai's theory, the Reds have already actually implemented it, demonstrating powerful four-engine bombers that are significantly superior to British machines of a similar purpose," and a French correspondent pleased readers with the statement that "five hundred Russian bombers they can crush Europa like a rotten egg." In fact, the matter was limited to records and demonstrations: there were always big problems with the organization of real systematic combat training in the Red Army, which was part of the national economy. Therefore, in December, the people's commissar stated that the most important tasks he had set were "largely underfulfilled," and "independent actions of aviation formations have been worked out mainly in the form of long-haul flights of heavy

aviation."

December 28, 1935 K.E. Voroshilov again signed the annual order on the results of combat training, in which

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again pointed out that in aviation "independent actions of large formations have not been worked out", that further improvement of the combat training of the Air Force must be built on the basis of conducting independent operations in conditions of interaction with other branches of the military. The Chief of the General Staff and the Chief of the Air Force of the Red Army were asked to develop a special instruction for the conduct of air operations. The formations of heavy bomber aviation were ordered to practice attacks on large industrial facilities and railway junctions deep behind enemy lines, conduct large airborne assaults, and interact with naval forces when attacking enemy ships at sea and in bases during exercises and maneuvers. By the spring of 1936, the General Staff had developed detailed instructions for independent actions of the Red Army Air Force, and on April 12 it was put into effect.

At the same time, it was ordered to establish a special aviation regime over the entire territory of the USSR, "which excludes, even in peacetime, the possibility of a sudden appearance of aircraft over any point of the USSR that has important military-political and economic significance, without prior notification of the relevant aviation commanders."

By order of NCO No.-001 dated January 8, 1936, the Aviation Army of the Reserve of the High Command was created, which was soon renamed the 1st Special Purpose Aviation Army. Its administration included: the commander, the headquarters, the political department, the department of the commanding staff, the weapons inspection and the material and technical department. The GA consisted of four heavy bomber, three high-speed bomber brigades, support units, in total - 876 aircraft. Subsequently, the brigades were united into three corps, which were stationed in Monino, Kalinin, Voronezh. The first "air commander" was the well-known aviation theorist commander V.V. Khripin.

A year later, Kliment Efremovich proposed to the party

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leadership to not stop there and form another army to act against Japan. The management agreed. By order of NPO No.-0010 dated February 22, 1937, in order to perform special tasks in the Far East, aviation formations and units of OK-DVA were merged into the 2nd Aviation Army (AON-2) with subordination to the command of OKDVA and deployment in Khabarovsk. Commander F.V. was appointed commander. Ingaunis. In April, a single staff of special forces armies was established, consisting of two heavy bomber air brigades, one high-speed bomber brigade, and one fighter brigade. In total, the army had 250-260 aircraft: 150-170 heavy, about 50 front-line bombers and up to 50 fighters. A little later, long-range bomber squadrons on DB-3 were included in the GA - 31 vehicles in the state.

By that time, the romanticism of the revolution had completely withered away in the bureaucratic swamps, everything had become absolutely faceless-secret and, if not "special", then "special" — special departments and special equipment, special receivers and special distributors, special design bureaus and special armies. It would be impossible to come up with something for the fear of the enemies of Soviet power: the 1st Deadly Air Fleet or the 2nd Steel Winged Legion named after the capture of the Bastille are, after all, the only strategic air formations in the world! It was they who were supposed to inflict crushing blows in the initial period of the war, destroy the administrative and industrial centers of the enemy, destroy his military and naval bases, land numerous airborne assault forces, disrupt mobilization and strategic deployment, demoralize the enemy's army and awaken revolutionary activity. "oppressed masses".

The temporary instruction to the air forces of the Red Army provided for, in case of war, the concentration of air formations, as a rule, in the hands of the front command and their use to support one army or another. Such subordination made it possible, if necessary, to concentrate the efforts of front-line aviation on the heads

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nom direction of action of the troops. However, based on the experience of maneuvers, it was concluded that it would be expedient to transfer part of the combat aviation to the direct subordination of the army command in order to organize "proper interaction". The role of the front command in this case was reduced to coordinating the efforts of aviation "in the course of fulfilling the common task of fighting for air supremacy and assisting the offensive operation."

At the end of 1937, the Soviet Air Force consisted of 77 air brigades - 49 bombers, 10 assault, 14 fighter and 4 reconnaissance. The proportion of bombers was almost 55% of the aircraft fleet.

By the way, about landings. The "Tukhachevsky school" naturally raved about them: "If ... a country prepares for the large-scale production of airborne assault forces capable of capturing and stopping the operation of the enemy's railways in decisive directions, paralyzing the deployment and mobilization of his troops, etc., then such a country will be able to reverse the old methods of operational action and give the outcome of the war a much more decisive character ...

By capturing and destroying railroads and highways, one can easily, even with small forces, create very deep barrier zones, which the enemy will need a lot of time to overcome and restore ...

If there are people in the landing area who are specifically hostile to the bourgeois state and are revolutionary-minded, the importance of airborne landings will grow into an even more significant and decisive operational factor.

The first experimental non-standard airborne landing (164 people) and parachute landing (46 people) detachments were created in the Leningrad Military District in the first half of 1931. The experience was considered successful. At the end of the year, the commander of the troops of the district P.P. Belov reported that the exercises carried out confirmed the ability of landing forces to disrupt the work of the army and corps rear, to delay operational transfers for a long time, to disrupt the work of headquarters for

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control of the operation, destroy rear airfields and naval bases. The report proposed to form an airborne division on the basis of existing detachments, consisting of motorized landing and aviation brigades, a parachute detachment and the required number of special units.

The Decree of the Revolutionary Military Council of December 11, 1932 marked the beginning of the creation of mass airborne troops as part of the Air Force. In order to "resolutely develop" the airborne business, train the relevant personnel and units in the Leningrad Military District, the 3rd Special Purpose Airborne Brigade was deployed under the command of M.V. Boytsova. At the beginning of 1933, the 1st, 2nd, 3rd, and 4th Special Purpose Aviation Battalions were formed in the Volga, Belorussian, Ukrainian, and Moscow military districts, respectively. Somewhat later, under the personnel divisions of the Moscow Military District, the North Caucasian Military District, the SAVO and the Separate Red Banner Far Eastern Army, non-regular separate special-purpose rifle battalions arose. The Air Force was entrusted with ensuring their release behind enemy lines, supplies and communications during hostilities. By the end of the year, 29 such battalions were created with a total strength of up to 8,000 people.

In 1936, on the basis of regular and non-regular airborne units, two special aviation brigades were additionally created: the 13th in the Kiev and 47th in the Belorussian military districts. In the Far East, as part of OKDVA - 1, 2, 5 airborne regiments. In addition, three non-staff parachute regiments of 1660 people each are being formed in the Moscow Military District.

In parallel with the increase in the number of "winged infantry", means were developed for the transfer of paratroopers, supplying them with all types of material support. Combat aircraft were equipped with external suspensions, cabins and cradles for the delivery of people, equipment and cargo; landing gliders were built; all kinds of means were tested and adopted for service

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landing — from banal individual and cargo parachutes, the production of which was established in 1931, to the so-called "airbuses", designed for parachute-less dropping from strafing flight (Judging by the description, an airbus of the famous brand "G" was absolutely a brutal, I would say, purely proletarian design, incompatible with the ordinary human psyche. It was a kind of streamlined flat container "with good shock absorption", with front landing gear or skis, in the compartments of which, separated by partitions, a dozen paratroopers were lying down. In such a helpless position, suspended under the belly of the transporter, they were delivered to the drop point, and then the most interesting thing happened: "Having separated from the plane flying at a height of two or three meters, the airbus continued to move by inertia for the first seconds, and then, going into a gentle descent, landed on the terrain (!) with a sliding landing." After landing on the terrain, paratroopers were supposed to jump out like devils out of a box and, having dumbfounded the enemy with surprise, capture, for example, an airfield. The device was recommended for mass production). The experimenters enthusiastically dropped from the air on the ground, on the snow and on the water, with and without parachutes, a variety of caps, platforms, tanks, cars, motorcycles, snowmobiles and motor boats. The possibility of half-grabbing people and cargo by plane from the ground was worked out.

In the instructions for operational-tactical training for 1933, the Revolutionary Military Council demanded from the military districts: "Widely expand the training of airborne assault forces. To expand the practice of interaction between formations and units of the ground forces with airborne assault forces. Provide at least one large-scale exercise of all-arms units with airborne assault forces per year in each military district. In the tasks for 1934: "The production of airborne assault forces should become the subject of constant exercises for all combat (military and army, light and heavy) and auxiliary aviation, especially command personnel and staffs ..."

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In 1934, 600 paratroopers took part in the maneuvers of the Red Army; In 1935, 3,000 paratroopers were parachuted on the Kievskiy Willows in 1936, while 8,200 fighters with artillery, light tanks and other military equipment were landed on an even larger Belarusian maneuvers. We can say that the world gasped again. Foreign military observers, with their mouths open, looked at the troops, "flying tanks" and "air carts" dashing landing in whole subdivisions. Fighting was also going on in the air - squadrons of "red" and "blue" attacked each other and stormed ground targets. 440 aircraft were involved in the Kiev maneuvers, including 242 R-5, 89 I-5, 60 TB-3, 22 R-6 and 27 U-2 liaison aircraft: in Belarus - 632. During the exercises of the Moscow Military District, in addition to the combined parachute regiment, the 84th rifle division was transferred to the rear of the mock enemy by aircraft.

Where are the German and Japanese militarists, to the militarists of the "Reds" who were building the eighth wonder of the world - the greatest army in the world.

The tasks of the Airborne Forces were enshrined in PU-36: "The most important task of the parachute troops is to support the army in operations to encircle and destroy enemy forces.

Airborne units are an effective means of disorganizing the control and operation of the enemy's rear. In cooperation with the troops advancing from the front, parachute landing units can have a decisive influence on the complete defeat of the enemy in this direction.

People's Commissar Voroshilov announced with aplomb at the party congress: "Parachuting is an area in which the Soviet Union has a monopoly. Not a single people on earth can even compare with the Soviet Union in this field, much less dream of covering the distance we have taken the lead. There can be no question of being overtaken by us."

Indeed, no one overtook us, only in the German-Soviet war there was no "decisive influence"

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For a number of reasons, the Soviet landing troops did not provide, including, according to the Germans, "due to poor technical (!) And organizational support from the command." Colossal funds were spent on military toys and war games, but they did not bother to create a normal transport aircraft for the paratroopers - just give us bombers. Meanwhile, the value of the TB-3 as a means of landing airborne assaults, even in 1936, inspired doubts. According to the results of the MVO exercise, brigade commander E.I. Tatarchenko noted in his report: "Such a machine can be sent deep behind enemy lines only if it has undeniable superiority in the air, at least only for the duration of the operation. Otherwise, you can only fly at night. But on short summer nights, the low-speed TB-3 will not fly far to the rear."

However, there is only one main reason: a month before the start of grandiose "performances", all the moves of the opposing sides were signed by hours and kilometers and strictly observed under the supervision of intermediaries - any initiative was punishable (If in terms of the exercises of the Leningrad District, held in September 1937, it was planned to drop a thousand paratroopers at 14.00, then they were thrown out according to the schedule, despite the wind speed up to 12 m / s: "As a result of this release, 59 soldiers and commanders were injured paratroopers, including 4 killed, 8 people with hip fractures, 3 of them with shrapnel fractures, 6 people with brain concussion, 5 cases of sprains, 5 dislocations, in the remaining 30 cases - slight bruises and sprains"); in a real situation, the enemy interfered with defeating himself.

Interwar theories were put to the test in practice at the Spanish "proving ground".

On July 17, 1936, the "reactionary forces" of Spain, who did not want to be dispossessed, nationalized and liquidated as a class, revolted. Needless to say, not the first. Rebellions against the Popular Front government broke out every year. So, in October 1934 it was

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the uprising of the miners in Asturias and the anarchists in Catalonia was utterly suppressed. This time, the conspiracy to overthrow the "red" radicals was made up of generals and officers, who were supported by most of the army, the bourgeoisie, the peasantry, and the clergy (which the socialists exterminated with particular zeal). The Civil War began.

Experiencing a huge need for heavy weapons and military equipment, General Francisco Franco turned to Hitler and Mussolini for help. Both in Rome and in Berlin they decided to provide all possible assistance to the rebels in the "fight against communism".

On August 7, 20 German Junkers-52 transport aircraft and six He-51 biplane fighters arrived in Cadiz. Their task, at first, was to ensure the transfer from North Africa to the Iberian Peninsula of parts of the "Foreign Legion" and Moroccan

sky shooters. On August 13, 12 Italian SV-32 fighters were unloaded in the port of Melilla. In total, Italy transferred 759 aircraft to the Falangists, Germany - 650.

The Republican government also purchased military equipment and equipment wherever it could — in Mexico, France, Poland. But the main supplier of weapons was the Soviet Union, which sold, among other things, 110 thousand bombs and 806 aircraft - I-15, I-16 (type 5, 6, 10 - a total of 455 copies), SB, R-5, - from which - 648 arrived at their destination. Another 214 "gulls" and 40 I-16s were built at republican factories. The first batch of Soviet fighters was delivered to Cartagena from Odessa at the end of October 1936.

If Hitler supplied Franco for free, counting on future dividends, then Stalin received Spain's gold reserves for his "international assistance".

Following the equipment, Italian, German and Soviet "volunteers" reached Spain, changing their military uniforms to civilian suits, and service IDs and party cards to purely civilian documents. So, the German pilot Kraft Eberhard left Germany as part of a tourist group, and the pilot

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Georgy Zakharov and his comrades left Sevastopol on a "Voroshilov business trip" with the "crusts" of a cadet of a nautical school.

At first, the "interested persons" tried not to advertise too much their participation in the escalating war, but very soon the Italian-German assistance to General Franco turned into a direct intervention, in which about 250 thousand Italian, 20 thousand Portuguese and 50 thousand German military personnel took part. . The USSR sent about 3,000 people to Spain. Instructors and advisers almost immediately became direct participants in hostilities, and a foreign country turned into a testing ground for testing new weapons and tactics.

The main structures of the German Condor Legion, formed in November 1936, were a group of bombers, which included four squadrons of 12 Li-52 transports converted into bomb carriers with a parade speed of 280 km/h, and a group of fighters of four squadrons of 9 He aircraft. -51. Then they added a reconnaissance squadron of 12 aircraft, a squadron of naval reconnaissance aircraft of [4 machines, an anti-aircraft group of six batteries, two squadrons of "experimental designs". As soon as the prototypes of promising aircraft left the assembly lines in the Reich, they were sent to Spain for military testing and replenishment. In the spring of 1937, the legion received Ro-17E, He-111V, LI-860 bombers, H\$-123 dive bombers, He-112V fighters and BE-109V messers.

Air battles "in a cloudless sky" showed that the I-15 fighter was superior in all respects to the Non-51 (so much so that legionnaire Harro Gardner noted in his diary: "Given technical backwardness, any resistance is meaningless") and has an advantage in horizontal maneuverability and rate of climb over the most frequently encountered enemy — the Italian Fiat SVK 32. And the I-16 monoplane outperformed everyone in speed and vertical maneuver. The Italians tried to compensate for their weaknesses with the advantage of more powerfully

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weapons that made it possible to fight from long distances, beyond the reach of ShKAS fire. The Germans gradually reoriented the Non-51 to support ground troops and did not fail. The Soviet "hawks" tried to implement the armchair tactics of the interaction of maneuverable biplanes and high-speed monoplanes, but due to the lack of experience and radio communications, it turned out badly. After the first attack, the battle invariably turned into a dump.

"Usually, we ended every combat day with a debriefing on the ground," recalls General G.N. Zakharov. "Rychagov tried to recreate the overall picture of the departure, and attacks often emerged when we, as a whole group, rushed at one bomber, finishing it off, rushing at another, and the followers had to take care of the safety of their leader and, of course, of their own. But more often than not, after the very first attack that Rychagov started, the formation broke up and a merry-go-round, characteristic of that time, appeared at different heights: both friends and foes mixed up and each fought at his own peril and risk, although if in the confusion he managed to notice that it is difficult for a comrade, he hurried to the rescue. But this is if you had time to notice and was nearby.

Only later, after fighting, having gained experience in battles, we naturally came to understand the tactics of modern, by those standards, air combat. And at first, the pilots did not even take into account such tactical basics as entering the attack from the side of the sun. Therefore, they often started the battle from a deliberately disadvantageous position. Our main trump cards in the first days of combat work were the exceptional maneuverability of the I-15 and the individual skill of the pilots.

Bombers attacked ports through which military aid came to both opposing sides, railway junctions, cities and airfields. The fighters tried to prevent them from doing this, and also performed the tasks of supporting the ground troops. The theory seemed to be confirmed: high-speed SB, Non-111, \$ 5M-79, operating in the daytime unaccompanied

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niya, carried out their raids with almost impunity. However, this did not last long, with the advent of a new generation of monoplane fighters at the front, it was necessary to allocate cover for bomb carriers. In addition, they began to fly in large, bristling machine guns, in groups. Major General of Aviation E.E. Yerlykin recalls:

"It goes like a parade, a group of 4 aircraft - 32 Junkers and Kaproni with a large brick. Rychagov led the group, and I walked behind. We saw that such a large group was coming, we had never seen such a group, and no one began to attack it. They carefully turned around just above Madrid and left. The sight of such a large group led to embarrassment. Everyone knew that they were well armed, they were accompanied, it affected everyone. Rychagov refused to attack, I refused, Kovalevsky refused."

Under the changed conditions, shortcomings in the design of the SB appeared: weak defensive armament, lack of armor and protectors in the fuel tanks.

Combat collisions of the I-16 and the first modifications of the BE-109, armed with two rifle-caliber machine guns, showed approximately equal capabilities of these machines. Neither in speed nor in armament did the adversary surpass the "donkey". Of course, it was clear that the new "German" was a serious opponent: "But it was quite possible to fight with the "Messerschmitt", he was clearly weak on the verticals. On verticals with I-16 jokes are bad. As for our I-15s, their situation, of course, has become more complicated. However, the salvation of the I-15 was still its extraordinary maneuverability. In a battle on turns, the I-15 could go into the tail of any of the aircraft that existed then, and we counted on it.

In addition, the I-15, along with the R-5 and R-7 aircraft, were widely used for assault operations. The most common tactic was surprise strikes from low altitudes with a quick withdrawal to their territory.

A sad story about how "in August 1938, fascist units armed with the BE-109E fighter demonstrated overwhelming superiority over

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Soviet fighters, and air supremacy completely passed to the German aviation", was invented retroactively. Firstly, such a fighter did not yet exist, not only in Spain, but also in nature. Secondly, it is not clear how the three Messerschmitt squadrons could

to gain air supremacy "completely", and why the Soviet fighters failed to win it a year earlier, fighting with the "Fiats" and "Heinkels". And, finally, the appearance of an enemy aircraft flying 30 km / h faster is no reason to swear at your own weapons.

In September 1938, the Republican government of Spain, at a meeting of the League of Nations, announced a decision to completely withdraw foreign volunteers from its territory. Soviet pilots, who managed to destroy 213 enemy aircraft, were recalled to their homeland. The Spanish Republic fell in the last days of March 1939, and in May the last German "volunteers" returned to their homeland. The Condor Legion recorded 314 air victories on its own account (its own losses amounted to 96 aircraft, and combat losses were less than half); 14 thousand pilots and technicians who passed through it formed the backbone of the Luftwaffe.

In the course of the war, rich experience in maneuvering troops was accumulated, the enormous importance of aviation and tanks, as well as anti-tank and anti-aircraft artillery was confirmed, many tactical developments were confirmed or refuted.

Squadron commander Werner Molders, who scored 14 victories in Spain over republican aircraft, upon his return to his homeland was recognized as the leading authority in the field of combat use of fighters. He persistently introduced the principles of combat in a vertical maneuver. According to Molders, the attack should have been carried out from behind from above, mainly at small angles, at increased speed, fire in long bursts from a short distance, after the attack was completed, due to the kinetic energy of acceleration, go up again, from there to prepare a new attack. In the event of a miss, the pilot also

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sought to come off a steep "slide". This style of warfare has become a standard in the German Air Force. The Germans tried to avoid a maneuvering battle, as they firmly understood that a fighter, "becoming in a vir, loses the initiative." The yellow-mouthed oberfanerjunks memorized a simple set of rules: continuously conduct all-round observation, maintain an excess over the enemy, take into account the position of the sun and the ground situation, maintain continuous radio communication, attack unexpectedly, open fire from a "pistol" distance (Soviet armchair theorists believed this style - when the pilot "wants to shoot down the enemy unexpectedly, and not fight with him" - melancholic and cowardly and recommended to beat the enemy from any position: "A fighter enters the battle not to" wash off "at the first failure, but in order to to destroy the enemy)).

If at first German fighters flew on missions in flights of three aircraft, now a pair has become the basic combat unit - a leader and a follower. Fighters kept from each other at a distance of approximately two hundred meters. Such a distance allowed the pilots to fully concentrate on the search for the enemy, without thinking about the exact observance of the distance between their aircraft. The leader of the pair conducted a visual search for the enemy in the front hemisphere, while the follower covered him from behind. In the air, as a rule, a link of two interacting pairs "worked".

The fighting in Spain had a decisive influence on the further development of the attack aircraft of the Luftwaffe. The mediocre He-51 fighter turned out to be a good attack aircraft, especially if the pilot showed initiative and ingenuity. The squadron under the command of Lieutenant Adolf Galland, making several sorties a day, was the first to test the tactics of actions to support troops on the battlefield, applying various innovations along the way - the use of advanced field airfields, dense combat formation, approaching the target from the side rear of the enemy, "carpet" bomb

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throwing in the ranks of the front. One of the inventions of German mechanics was homemade incendiary bombs made from 100-liter external fuel tanks. Particular attention was paid to the coordination of air and ground strikes. Although at first "Hitler's

vultures" considered such actions below their dignity: "Performing these tasks makes us feel like poachers who use weapons not quite decently compared to how real hunters do."

In April 1937, the supporters of the concept of a medium bomber and targeted bombing, which made it possible to influence the enemy with maximum efficiency with a minimum consumption of ammunition and clear the way for advancing troops, finally won in the German Air Force. The formation of attack aircraft began. At the same time, despite the fact that the four-engine Oo-19 and L1-89 were already ready for testing, the Reich Minister Hermann Goering officially closed the program for creating a long-range heavy Uralbomber.

In January 1938, a flight of three /a-87As appeared in the Spanish sky. Pretty soon they earned a good reputation among the aircrew and the recognition of the ground forces, and most importantly, they dispelled all doubts of the Luftwaffe leadership. Galland, who after returning from a business trip was instructed to develop a methodology for training the newly formed attack air groups, recalled: "Only from my own experience of fighting in Spain, I realized that there is a big difference between the tactics of fighters and attack aircraft. We had the task of supporting the advance of the nationalist infantry. We attacked the positions of the republican artillery, suitable reserves, prevented the delivery of ammunition. German stormtroopers became a necessary requisite for every operation of the nationalists. Then our enemy had nothing of equal value." In Berlin, they were finally convinced how important the actions of attack aircraft are for the success of ground

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operations. K | On September 1939, the Luftwaffe had 9 groups of dive bombers armed with 295 L1-87 and one group of direct support of troops, which had 40 H5\$-123.

The main tactical unit of the German Air Force was considered a squadron (12-16 aircraft), consisting of three units. Three squadrons were combined into an air group (30-40 aircraft), which, in turn, were reduced to squadrons by three or four. The groups and squadrons had separate headquarters units. The next steps in the structure of the Luftwaffe were the aviation division and the aviation corps, which did not have a permanent composition and were actually created on a territorial basis. They carried out operational management of aviation operations in the operational area, and squadron commanders retained full tactical independence. Air divisions and air corps were subordinate to the so-called aviation commands, which were also created on a territorial basis, depending on specific tasks. The highest operational unit was the air fleet, which operated in a certain theater of operations. By the beginning of World War II, there were four fleets. In addition, the Luftwaffe organizationally included airborne troops, air defense forces and its own communications service. By the fall of 1939, 16 regiments and 59 communications battalions of the Luftwaffe were created.

The magnificent Goering commanded all this splendor, who did not allow outsiders into his patrimony: "Everything that flies belongs to me!"

Only about 15% of aviation forces were transferred to field armies during combat operations, the rest were united into air fleets, reporting directly to the Air Force High Command and performing tasks in cooperation with ground forces. This greatly facilitated the organization and execution of maneuver along the front line or between fronts, and the concentration of the main forces of the Luftwaffe at the right time and in the right place in the interests of the German ground forces.

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Soviet "volunteers" who returned from a business trip also wrote reports: "We had to do it in the most detailed way – each in his own way! - describe the cars (our own and others), battles,

tactics and everything, everything that made us think there, in Spain. The leaflets written by us were then carefully studied by specialists - in this way, the combat experience was summarized bit by bit. They wrote a lot and in different instances. They wrote to the Air Force Directorate, to the People's Commissariat of Internal Affairs, Comrade Voroshilov and Comrade Stalin. On the organization of fighter air combat: "The best tactic is climbing and surprise attack from behind the clouds (from behind) using the advantage in height and excess speed." On the principles of using ground attack aircraft: "Suddenly and in the shortest time, give maximum fire." About ways to cover their bombers. On the shortcomings of our military equipment and training methods

pilots.

Here, for example, on April 5, 1937, a meeting took place between the "Spaniard" pilots and the leadership of the Red Army:

"KHOLZUNOV (in Spain — the commander of a bomber squadron): The use of SB, I believe, was wrong in most cases. They bombed along the front, but the tasks were often set very illiterately, many commanders did not feel any training, although most of them graduated from the Academy or studied at the Lipetsk school.

There were cases when the task was set in this way: to bomb a detached house northwest of Casa del Campo. Requires 3 SB aircraft. And that's all. And how many kilometers - at least they indicated ...

We have not seen any leadership from above as to what is the best formation or order, as to ensuring that there are as few casualties as possible.

Our organization seemed to be large: the aviation headquarters is considered, then there are group headquarters, then squadron headquarters. The aviation headquarters does not make a decision as an aviation headquarters, but makes a decision that should have

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the commander of the detachment would accept: he indicates the route, how many planes and where how many to drop bombs ...

Control in the air is produced by the evolution of the aircraft. In order to establish a connection, you need to put a person there who would sit exclusively on the connection ...

YERLYKIN (commander of a special group of I-15 fighters):

At first, we could not come up with any tactics for ourselves. Airplanes came in and we pounced on them like dogs. The Germans see that things are bad, they immediately go into a steep dive and leave. Then we attacked another plane. In general, it was customary for us to pounce on one or two, knock them down to the ground and then climb up on the others. We always walked in a group, we never scattered (mainly because the Soviet fighters did not have radio stations. - Auth.).

Based on the experience of the first battles, we decided not to yield air in any case, and in subsequent battles the first ones began to attack and worked out our own tactics. We had 4 links - the leading four, the closing four, 2 triples on the right and left. One of the triplets was much taller, the patrol guard...

By the end of December, we worked very well with the I-16. Very rarely then they began to lose their people.

It is a pity that it turned out to be of no use to anyone.

In 1936, the wave of everyday slaughter of "kulaks", "saboteurs" and "residual classes" reached the very top and turned into the Great Massacre of the old Bolsheviks, comrades-in-arms of the "imperishable

bodies", hung with orders and privileges of "heroes of October", [Civil War and great social experiments. Everyone went under the knife.

"The USSR was in a capitalist environment," said L.M. Kaganovich, — the war was approaching with the imperialists and, apparently, with all of them at once. Therefore, it was necessary to strengthen the country, the rear and the future front in every possible way. Based on this, it was decided to uproot the "swamp", that is, to destroy all the unreliable and vacillating.

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The war in Spain, in which Germany and Italy were actively involved, was regarded by Stalin as a harbinger of a new world war, on the eve of which it was necessary to "improve the strong body of the Soviet state" and, of course, "the body of the Red Army" in a short time. Clever commanders, according to Stalin's plan, were to be replaced by personally devoted, thinking commanders - loyal, from a new generation of nominees.

The total purge of the army began in the spring of 1937 with the destruction of the "gang of criminals and saboteurs", led by Marshal M.N. Tukhachevsky, who made up a "military fascist conspiracy" with the aim of losing the war with Germany and restoring capitalism in the country. The program of action of the conspirators, drawn up in the offices of the Lubyanka, in general terms looked as follows:

- 1) weakening the military power of the Red Army in order to achieve the defeat of Soviet power during the war;
- 2) organization of sabotage and sabotage;
- 3) the implementation of terrorist acts against the leaders of the party and government;
- 4) spying for "foreign intelligence agencies".

Aviation, as you know, the Leader was especially fond of. "One can say," writes Marshal G.K. Zhukov, that aviation was even to some extent a hobby of I.V. Stalin." Therefore, in three and a half years, four chiefs have changed in the Air Force, and they have by no means retired.

In May 1937, Deputy People's Commissar of Defense Commander-in-arms 2nd rank Ya.I. Alksnis represented the Air Force in the Special Judicial Presence, which unanimously sentenced Tukhachevsky's group to execution. They say that Yakov Ivanovich was very zealous at the trial and filled with indignation towards the "vile double-dealers." On November 23, he himself was arrested as the leader of a "Latvian fascist organization", and two days later he gave confessions about how he was recruited by Latvian intelligence. It must be understood that the arrest of one defendant generated a chain reaction

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detentions of identified "members of a terrorist organization" and "Iponian residencies". The Alksnis-Vatsetis case marked the beginning of the action to exterminate Latvians in the Red Army. As well as Poles, Lithuanians and "any other Swedes." In the Far East, an "accomplice" of Alksnis, the head of the Air Force of the OKDVA commander F.A., was arrested. Ingaunis (although he was Lithuanian), in Orenburg he was the head of the military school for pilots brigade commander of the Republic of Kazakhstan. Rataush, in Kharkov - head of the 9th school of pilots and flight observers brigade commander Ya.E. Zaks (in addition, his commissar turned out to be a POLYAKKOM, "who disrupted the work of the party organization in exposing the enemies of the people"). Assistant Chief of the Naval Forces of the Red Army for Aviation Divisional Commander V.K. Bergström was Swedish by nationality and spied for Sweden. All the above-named persons were measured out "the highest measure of social protection":

"There is no and cannot be a place on the beautiful Soviet soil for creeping reptiles, traitors, terrorists, people who raise their criminal hand against our great, beloved and

to all dear comrade Stalin.

Together with Alksnis, more precisely, not together, but on the same day, commander V.K. Lavrov - he was also a member of the "fascist organization", only Russian, and the head of the Civil Air Fleet, commander I.F. Tkachev - this, according to the indictment, led the "Trotskyist-espionage-sabotage organization" in the Civil Air Fleet, worked for Hitler. The next Chief of Staff of the Red Army Air Force, Divisional Commander S.V. Testov died in Lefortovo prison.

Following the commanders of the troops of the districts, their deputies, chiefs of staff, heads of political departments, commanders of formations went under the ax and further down the chain "by uprooting and defeating." Marshal Voroshilov, acting hand in hand with the "organs of Comrade Yezhov", who destroyed twice as many Soviet generals as the Wehrmacht, speaking on October 8, 1937 at the analysis of the maneuvers of the Baltic Fleet, said: "The Polish and German spy Uborevich - in the BVO managed to complete

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a large number of command and political personnel, almost 90% of corps commanders, about the same number of division commanders, some of the regimental commanders. Until the end of the year, 1,205 commanding and commanding personnel were fired from the Air Force, 285 people were arrested. This was just the beginning.

In less than a year, the heads of the Air Force were sent to execution: the Belarusian Military District Commander S.A. Chernobrovkin, Kyiv Military District Divisional Commander A.M. Bakhrushin, Ural Military District Divisional Commander A.T. Kozhevnikov, Leningrad Military District Commander V.N. Lopatin, Volga Military District Divisional Commander F.A. Klysheiko, Siberian Military District Divisional Commander K.V. Maslov, Trans-Baikal Military District Divisional Commander I.I. Karklin and the division commander M.N. Shalimo. The latter held his post for thirteen days. The head of the Air Force of the Central Asian Military District, divisional commander of the RA, went through the stages. Yakubov.

A rare "bastard" turned out to be the head of the Air Force of the Pacific Fleet, L.I. Nikiforov. As proved by an unjust investigation, in the event of a war with Japan, the divisional commander was preparing to bombard his ships and fly naval aviation to the side of the enemy. The participants in the branched "military conspiracy" and "Japanese spies and saboteurs" were the head of the OKDVA Air Force commander A.Ya. Lapin, Head of the Air Force of the Primorsky Group of Forces Divisional Commander I.S. Florovsky and Chief of Staff of the Primorsky Group Air Force Colonel Zh.Ya. Reginsky. Before committing suicide in a prison cell, Lapin "sincerely repented" and surrendered all his accomplices:

"In addition to those recruited by me into the counter-revolutionary Troikist organization: DZYZA - pom. Commander OKDVA, PASHKOVSKY - commander of the 18th rifle corps, URALOV - commander of the 110th air brigade and KUTOVOY - commander of the 12th air squadron, I at different times recruited the following persons: - 1) beginning. Air Force of the Primorsky Group OKDVA, division commander FLOROVSKII, 2) flag-navigator of the Air Force OKDVA Captain BOGDANOV, 3) commander of the 301st light bomber squadron, Major KOPCHENOV... Meeting with FLOROVSKII at different times in 1935 and 1936, he

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informed me about his counter-revolutionary activities and told me that he had recruited the following persons: — 1) commander of the 29th air squadron IVANOV, 2) commander of the 19th air squadron in Galenki (forgot his last name), 3) beginning. opera. Parts of the Spassky Brigade KOCHENOVSKII, 4) engineer of the Baranovsky airfield, seconded to the headquarters of the Air Force of the Primorsky Group - MARCHENKO ...

During the war, the counter-revolutionary military organization had to disrupt the management of the Far Eastern troops, the participants in the organization had to give such orders and direct the units and troops subordinate to them in such a way as to go towards defeat ...

My sabotage work consisted in organizing disasters in the OKDVA Air Force. Among the disasters caused by the counter-revolutionary work of the members of the organization are: 1) the disaster in the Spassky brigade, 2) the disaster in the VLASOV in the Khabarovsk brigade, 3) the disaster in the METELKINA squadron in the 3rd light bomber squadron, 4) the disaster in the 31st squadron and others.

In the above disasters, 6 people died. Of all the disasters in parts of the Air Force for 1934-1936. at least 25% is the result of the sabotage work of our organization."

The division commander M.A. was the same "traitor". Gorbunov - Chief of the Air Force of the Baltic Fleet. And he did not escape the "revolutionary reprisal".

Commander of the 1st Aviation Army, a well-known theorist, one of the creators of the Soviet strategic bomber aviation commander V.V. Khripin, after talking with the Chekists, admitted that he was an agent of the French, German, Italian, British, Czechoslovak and Polish intelligence services. It is possible that he planned to bomb the Kremlin. It is clear that the corps commander alone could not cope with such a volume of espionage work Soobschnikov — the right hand was the chief of staff of AON-1 | "Brigade Commander-Terrorist" A.N. Andrianov, and the left head of the political department, divisional commissar I.P. Zykunov - uprooted together with the commander and sprinkled with earth at the Kommunarka special facility of the NKVD.

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Knowing neither sleep nor rest, the unleashed heirs of Dzerzhinsky worked: during the day they "stabbed" those under investigation, at night they pierced the backs of their heads. The conveyor worked uninterruptedly: 15-20 minutes for the reading of the verdict - and the basement.

Execution... Execution... Execution...

Divisional Commander J.Ya. Poga, commander of the heavy bomber air corps.

Kombrig A.Ya. Tsiemgal, commander of the 9th heavy bomber air brigade of the Belarusian Military District.

Kombrig A.A. Zhitov commander of the 15th heavy bomber air brigade of the Kyiv Military District.

Kombrig N.M. Stakhansky, three times Red Banner, commander of the 18th heavy bomber air brigade of the Kharkov Military District.

Kombrig I.Ya. Samoilov, commander of the 43rd mixed air brigade of the Kharkov Military District.

Kombrig D.M. Rudenko, commander of the 50th assault air brigade OKDVA.

The commander of the same brigade commander M.M. Ryzhenkov.

Colonel N.S. Razumov, commander of the 67th heavy bomber air brigade OKDVA.

Colonel V.I. Adriashenko, commander of the 84th Fighter Aviation Brigade of the Belarusian Military District.

Kombrig M.A. Kagan, commander of the 90th Fighter Aviation Brigade of the Kyiv Military District.

Kombrig G.M. Bondaryuk, commander of the 101st aviation brigade of the Trans-Baikal Military District.

Colonel P.A. Sanchuk, commander of the 110th air brigade of OKVDA.

Colonel S.G. Uralov, commander of the 139th high-speed bomber air brigade of the KBF Air Force.

Divisional Commander N.Ya. Kotov, Head of the Lipetsk Flight Tactical School of the Air Force.

They soldered the term to one of the organizers of the airborne troops in the USSR, the first commander of the 3rd Special Purpose Aviation Brigade, the chief of aviation of the border troops, brigade commander M.V. Boytsov. They shot the second

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the commander of this brigade, who grew into the commander of the 5th heavy bomber aviation corps, commander V.S. Kokhanovsky, commander of the 13th Special Purpose Aviation Brigade, Colonel A.O. Indzer and the commander of the 47th Special Purpose Air Brigade, brigade commander F.F. Karma hatch. In general, they put things in order in the landing troops.

At the same time, educational institutions were purged of "fascists": the head of the department of general tactics of the Zhukovsky Air Force Academy, Divisional Commander B.Ya. Lavinovsky, head of the department of operational art, Colonel A.S. Algazin, head of the educational department of the command department, Colonel A.K. Mednis, professor at the same academy and head of the Department of Aviation Tactics of the Frunze Military Academy, author of the concept of creating a GA, brigade commander A.N. Lapchinsky. The repressions of military theoreticians were followed by the withdrawal from circulation of their scientific works, the content of which was immediately seen as "harmful propositions" and "defeatist moods." A special commission was appointed by the People's Commissar of Defense to review all military and military-political literature - "in order to cleanse it of politically harmful and outdated". The time for theoretical discussions was over; the rules of war were now being written in the Kremlin.

"Military theory essentially boiled down to making up a mosaic of Stalin's statements on military issues," writes Marshal M.F. Zakharov. — Simultaneously (with the disbandment of the tank corps. — Auth.) there were attempts to drastically change the tasks of aviation, reducing them, in essence, to operations only over the battlefield in close tactical connection with the ground troops waging this battle. Such events testified to the turn of military theory back - to the wedge forms of struggle on an operational scale.

The French military attaché reported to Paris:

"1. The Red Army probably no longer has high-ranking commanders who would participate in the world war except as soldiers or non-commissioned officers.

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officers. 2. The military doctrine developed by Tukhachevsky and his entourage, which the manuals and instructions declared wrecking and canceled, no longer exists. 3. The level of military and general culture of the cadres, which had previously been very low, especially fell due to the fact that the highest command posts were transferred to officers who were quickly promoted to command a corps or army, jumped several steps at once and were chosen either from among the youth, whose training left much to be desired and whose intellectual qualities excluded a critical or non-conformist position, or from among the militaries of no value, who were in the public eye during the Civil War and subsequently pushed aside, which allowed them to avoid any contact with the "enemies of the people". Under the current conditions, promotion in the Red Army is a kind of diploma of incompetence...>

It was a period when dizzying careers were made, when captains and majors, who had barely mastered the duties of a company, battery or squadron commander, took command of divisions and brigades. A year or two later they received the epaulettes of a general, but what did they understand in the leadership of large formations, were they capable, not to say, of solving tactical and operational tasks, but at least formulating questions correctly? And was it required of them? And what was required of them? By all indications, the main thing was to "breathe properly", in tact with the "general line". And they were allowed to think and were even ordered to take the initiative later, when the "invincible red regiments" beyond the Volga caught their breath. Marshal GK. Zhukov, the brightest representative of the new generation of Stalinist generals about the book by B.M. Shaposhnikov "The Brain of the Army" published in his memoirs:

"It is a thing of the past, but then, as now, I believe that the title of the book "The Brain of the Army" in relation to the Red Army is incorrect. The "brain" of the Red Army from the first days of it ... was the Central Committee of the All-Union Communist Party of Bolsheviks, since not a single decision on a major military issue was made without studying

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of the Central Committee. The name is rather suitable for the old tsarist army, where the "brain" was indeed the General Staff."

As you know, the brain of the Central Committee was in the head of Comrade Stalin, and the Central Committee itself never met during the entire war, since there was no need for it. Meanwhile, in the mid-1930s, foreign observers in their analytical notes asserted that "the current Soviet defense plan and the large expansion of the Red Army carried out over the past year or two were born entirely from the head of Tukhachevsky." Iosif Vissarionovich read these reports and intended to correct the "wrong situation". And the fact that the disgraced military leaders, instead of simply being fired or imprisoned, were shot, so this is "a peculiarity of the national

hunting."

In July 1937, when the shooting at friendly forces in the Red Army was just flaring up, Captain Kootani, an assistant to the military attaché in Moscow, made a report to the Japanese political and military elite:

"The question arises - was it really necessary to shoot a whole group with a volley just out of antipathy? Of course, there must be some motive. My personal opinion regarding this motive is that there was no insurrection plan, not even terrorist plans. As far as we can imagine, it is quite possible that military specialists responded to Stalin's attempt to carry out a complete purge among the army with certain opposition, based on the need not to reduce the combat effectiveness of the army ...

You might think that only for such an opposition could not have been shot, but this is how the Japanese think, who judge Russia based on the situation in Japan, while in Russia, in the event of a train collision, the head of the station, who is responsible for this, is immediately shot. Human life is valued cheaply in Russia, and if they tell me whether it's not funny that people are shot for such opposition, I'll say that there's nothing funny here, but for Russia it's quite

Maybe.

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Various assumptions can be made, but probably no one will be able to dispute that the current process is connected with the purge carried out by Stalin in the country, in other words, that it is aimed at strengthening Stalin's dictatorship.

Today it has become fashionable to assert that not so many commanders were repressed, not all of them were shot, some were even released and reinstated in the army. Indeed, someone was simply fired for political reasons (and it is very likely that they were later tried as a purely civil person), someone was simply imprisoned, someone was later released under the slogans of "fighting excesses" and "restoration of socialist legality".

Commander of the 3rd Heavy Bomber Air Corps A.M. Tarnovsky-Terletsky was sentenced to eight years in extermination labor camps, where he died in 1943. In the war with the Germans, he was not useful. Commander of the 4th Heavy Bomber Brigade Commander M.S. Medyansky got off relatively lightly for his connection with the "enemies of the people" Uborevich and Khripin: with a broken rib and almost three years in a pre-trial detention center, after which he was reinstated in the army and taught at various aviation schools, but he was also not allowed to go to war. Like the former commander of the 31st Fighter Aviation Brigade of the KBF Air Force, brigade commander I.V. Sharapov, who received the post of head of the Stalin Naval Aviation School. His assistant was Colonel P.A. Fedorov. The former head of the Air Force of the Black Sea Fleet in 1941 headed the Naval Aviation School named after Levanevsky. Brigade commander A.S. Zaitsev,

who commanded the 3rd airborne brigade, was arrested in 1937 (I don't know what article he was scribbled on, but he was arrested for his deed, for that very ill-fated landing), was released in 1941 and made head of the Air Force Department of the Frunze Military Academy (head - the nickname of the headquarters of the 3rd brigade, Colonel I.P. Yeshurin, was shot for a political article).

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Some were even given the rank of general.

So after all, you don't need to kill everyone, it's stupid. Even the ancient Romans knew that in order to quickly raise the morale of the legion, it was enough to behead every tenth - for example, the remaining nine, and the Bolsheviks practiced decimation. This last means of restoring order was used in the war in the event of the flight of units from the battlefield. Stalin improved the technique and carried out his "educational event" before the start of the battle. The Leader's motive lay on the surface: to put "beetles" at the head of the Red Army, thinking first with a party card, and then with their heads. Unanimity as the basis of combat capability, fear as an incentive for loyalty. Zhukov's passage testifies that the Leader achieved his goal.

True, in peacetime such an army quickly degrades. Its commanders, accustomed to "totalitarian penal servitude of the mind", are not interested in military affairs, and the soldiers perceive service as a burden. Remaining essentially the commissar of the Civil War, Stalin did not understand that the times when the outcome of the battle was decided by the "big battalions" had irrevocably passed. Potential adversaries understood: "Thanks to the current incident, mutual suspicion and anxiety will deepen among the command staff, especially among the top command staff of the Red Army, then, thanks to further repressions, the atmosphere of mutual distrust and anxiety will intensify in the leading stratum of the central administrative bodies. All this harms the spiritual solidarity of the people, and there is no doubt that from the point of view of synthetic defense power or state defense in the broadest sense, the moral weakness of the USSR will be more and more pronounced, and that the current incident will serve as a source of disaster in the future. ... when we have to fight with them, we will have to make the most of this weak point of the enemy.

As expected, the repressions in the army gave rise to distrust among the Red Army officers, led to a decrease in the level of their professional training, ruined any initiative and independence.

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It was during this period that a catastrophic decline in military discipline was observed, a sharp increase in drunkenness, which, even for an army that was always drinking, acquired unprecedented proportions. On December 28, 1938, order No.-0219 was issued in the People's Commissariat of Defense: "On the fight against drunkenness in the Red Army":

"Recently, drunkenness in the army has become truly menacing. This evil was especially rooted in the environment of the commanding staff.

According to far from complete data, in the Byelorussian Special Military District alone over 1,300 ugly cases of drunkenness were noted during the 9 months of 1938; in parts of the Ural Military District over 100 cases over the same period; military districts...

Drunkenness has become a real scourge of the army. Notorious scoundrels and drunkards, in front of their excessively calm bosses, in front of the party and Komsomol organizations, undermine the foundations of military discipline and decompose military units.

A significant part of all accidents, catastrophes and other emergencies are a direct consequence of drunkenness and an unacceptable attitude towards this evil on the part of responsible bosses and commissars...

This suggests that the tarnished honor of a soldier of the Workers 'and Peasants' Red Army and the honor of the military unit to which you belong are of little concern to us.

Voroshilov's rhetoric about honor sounds especially amusing. Some commanders, while waiting for their turn, filled their fear with vodka, others resorted to suicide, others "turned the bolt into service", but the commander of the 11th heavy bomber air brigade, brigade commander A.I. Orlovsky, exhausted at night listening to footsteps outside the door, wrote a denunciation of himself, in which he confessed that he was in a "military conspiracy."

It is quite natural that the decline in professionalism and discipline led to a surge in accidents: the planes burned, exploded, fell, collided, fought on the ground and in the air. In 1936 in the Air Force

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280 accidents and catastrophes occurred, 94 people died. The number of incidents grew steadily, and, of course, they were all the result of the subversive activities of "agents of German-Japanese fascism." On May 25, 1937, Voropgilov signed an order: "On measures to prevent damage to the material part of the Red Army Air Force through malicious intent":

"Recently, in the Air Force of the Red Army, there have been a number of cases of damage to the material part due to malicious intent, which led to accidents and even catastrophes with heavy human casualties.

The investigation of these cases has established that our vigilance is still insufficient, that saboteurs and wreckers, taking advantage of our disorganization and weakness of control, remain unexposed and continue to do their dirty work.

It did not help: in 1937, 110 people died in 398 accidents and catastrophes.

By Order No.-0018 dated May 21, 1938, the "Decree of the Main Military Council of the Red Army on the accident rate in the units of the Red Army Air Force" was brought to the command, political and engineering staff, which spoke of "a huge increase in accidents and especially catastrophes":

"Despite the fact that the Central Committee of the All-Union Communist Party of Bolsheviks and the Government in 1932, and then in 1936. put before the Air Force of the Red Army in its entirety the question of combating accidents, over the past two years the accident rate has not only not decreased, but has increased significantly, especially in January, February and the first half of March 1938.

In 1937 the number of emergencies in the Air Force compared to 1936 increased: a) for accidents by 80%, 6) for catastrophes by 70%.

Taking into account the "cleansing processes" that took place in the country, the explanation for this was found to be quite expected - "enemies of the people" still crap, and "devoted to the party and the working class" promoters are incompetent:

"1. In a number of units, Bolshevik vigilance was weakened, and party political work was poorly organized. Enemies of the people who have not been completely rooted out in such a situation cleverly use the situation, continuing to do their criminal deeds.

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2. Military discipline has somewhat weakened, as a result of which the orders and regulations of the Red Army, which regulate the military order and the relationship between superiors and subordinates, are violated. Slackness and slovenliness appeared, reaching in some cases to the discussion of the orders given by the chiefs. There are cases of familiarity and false democracy.

3. The young commanding and political cadres who have been promoted to leading positions and are loyal to the Party and the working class, possessing high personal qualities, for the most part do not yet have practical experience in leading units and formations, and cannot concentrate their main attention and time on the most important questions - personal leadership of combat training.

It often happens that they themselves are not yet a model of discipline. Insufficient exactingness of these comrades in a number of cases comes to obvious connivance - violations of charters, instructions and manuals (flight and service laxity, indiscipline). These young commanders need continuous help, guidance and Bolshevik education from senior commanders in the command and political line...

12. Military acceptance at the factories (21st and 1st factories) for I-16 and R-zet aircraft, in the presence of sabotage at these factories, did not cope with its task, as a result of which the material part is supplied to the Air Force of the Red Army with manufacturing defects and the presence of sabotage”.

Aircraft, meanwhile, continued to "fall". In 1938, there were 571 catastrophes and accidents, in which 273 people died, including the commander of the OKDVA Air Force division commander Sorokin, Heroes of the Soviet Union brigade commander A.M. Bryandinskiy and V.P. Chkalov. According to the Deputy People's Commissar of Internal Affairs M.P. Frinovsky (report of August 31, 1938), in the Far East, the number of disasters increased by 400% compared to the previous year.

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On June 4, 1939, Voroshilov signed order No. 070 "On measures to prevent accidents in units of the Red Army Air Forces", which paints a depressing picture:

"The number of flight accidents in 1939, especially in April and May, reached extraordinary proportions. During the period from January 1 to May 15, 34 disasters occurred, 70 personnel died in them. During the same period, 126 accidents occurred, in which 91 aircraft were destroyed. Only at the end of 1936 and for the first time in the months of 1939. we lost 5 outstanding pilots - Heroes of the Soviet Union, 5 best people of our country - coms. Bryandinsky, Chkalov, Gubenko, Serov and Polina Osipenko.

These heavy losses, like the vast majority of other catastrophes and accidents, are a direct result of:

a) criminal violation of special orders, regulations, flight manuals and instructions;

6) the extremely poor work of the command and political staff of the air forces and the military councils of the districts and armies in educating the flight personnel of aviation units;

c) poorly organized and even worse conducted planning and consistency in the combat training of aviation units;

d) the inability of senior commanders and commissars to establish flight technical training with each crew and pilots individually in accordance with the level of their special knowledge, preparedness, their individual and specific abilities and qualities;

e) still unsatisfactory knowledge of the material part of the personnel and, as a result of this, its poor operation and

f) most importantly, the unacceptable weakening of military discipline in parts of the Air Force and laxity, unfortunately, even among the best pilots, not excluding some Heroes of the Soviet Union.

Literally every catastrophe and incident serves as confirmation of everything that has been said, since with the most cursory acquaintance with them, as a rule, the cause is

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or indiscipline and laxity, or inattentive and unacceptably negligent attitude to their duties of the flight and lifting and technical staff.

There is not a word about "pests" in the document, and therefore, in the order part, along with the requirement to "walk in formation" and sentences like: "Aircraft is a thing more complicated than a steam locomotive", quite specific and practical instructions were given" on the eradication of ugly phenomena, leading to a large number of all kinds of incidents". However, as it usually happens with us, the chiefs, in order not to spoil the reporting, took the simplest path: to ban night flights, aerobatics, maneuvering at low altitudes...

Nevertheless, the disgrace was eliminated at an unsatisfactory pace, and a year later, the new People's Commissar for Defense, Marshal S.K. Timoshenko had to write a new order "On the Tasks of the Red Army Air Force in Connection with a Major Accident Rate," which contained the same message:

"From the GPO on August 10, 1940, 26 aviation regiments were checked by my deputies. The inspection covered the aviation units of the Baltic, Western, Kyiv, Odessa, Transcaucasian, North Caucasian and Transbaikal military districts. The inspection was carried out in order to find out the reasons for the unacceptably high accident rate in the units of the Red Army Air Force. It has been established that the main causes of accidents are are:

1. Extremely low discipline, laxity and lack of organization in the units of the Red Army Air Force. As a result of weak control, orders, charters and instructions for flight operations that regulate flight work are not strictly and consistently followed... characterize the low state of discipline and generate accidents.
2. The organization of combat training in many regiments is unsatisfactory. The planning of combat training is carried out "out of time and space", which is a consequence of ignorance of the preparedness of squadrons and leads to

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to setting unbearable and unrealistic goals. Squadrons have not yet learned to approach the pilot individually — to set tasks in accordance with his training, as a result of which accidents and catastrophes occur ...

3. Navigator training in most units, and especially in fighter units, is at a low level. Knowledge of the basics of navigation is weak. There is an excessively large number of loss of orientation, including among the leading command staff.
4. As a mass phenomenon - poor knowledge of the material part of the flight and technical staff. The pilots and part of the commanders have little knowledge of the data of their aircraft and engine. The pilots, not knowing the material part, are afraid to control the work of the technical staff. The commanders of units and subunits, not knowing the material part of the aircraft and the engine themselves, do not require and do not check knowledge of their subordinates.
5. A large number of breakdowns, accidents and disasters occur during takeoffs and landings of aircraft. This indicates that important elements of piloting technique, takeoff and landing, have not been worked out by young pilots.

6. Checking the piloting technique is poorly organized, is carried out irregularly and not within the time limits specified in No. 69 of NPIP-35. A review of flight books showed that the errors noted during the verification of piloting technique are not eliminated, but only fixed, i.e. the most outrageous disgrace deliberately occurs when a pilot with known and uncorrected errors continues to fly on a more difficult mission, does not cope with it, repeats mistakes, hits the plane and dies itself.

7. In Air Force units, the positions of commanders of regiments, squadrons and units are occupied by commanders who do not have sufficient experience in leading units and subunits. Unit commanders do not have instructor and methodological experience, they do not know how to show and teach their subordinate. The commanders of the air forces of the districts, the commanders of divisions and regiments did not understand the need to especially teach and educate personnel, but left them to themselves. This leads to the fact that the flight and squadron commander does not know how to build a ra

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bot, makes mistakes that cause accidents. The above reasons that give rise to accidents cannot remain in the Air Force units and must be eradicated by the most decisive measures.

The order mentions aviation regiments for a reason. At the beginning of 1938, a new change in the structure of the Air Force began. The size of the fighter squadron was reduced to 15 vehicles, the rest - to 12; the squads disappeared. The main structural unit was the regiment, which consisted of four or five squadrons and a control link. Fighter, assault and bomber regiments in the state had five squadrons, each squadron had four links, plus a communications aircraft - 61 vehicles; heavy bomber regiments - four squadrons, 40 bombers.

Shelves could be specialized or mixed. They united in brigades, in which there were 100-150 vehicles each. All air brigades were to be combined into aviation corps, 2-4 brigades each. As before, separate units remained - reconnaissance and corrective squadrons, communication links, etc. The main point of the reorganization was the separation of the rear from the combat units, which increased their operational mobility and mobilization READINESS.

According to the mobilization plan for 1938-1939, in case of war, it was planned to deploy 155 aviation brigades and field 11,000 combat aircraft.

On May 21, by order of NPO No.-0017 dated May 21, 1938, two more separate aviation armies were formed with deployment in Voronezh and Rostov. The same order established for the GA a four-regiment structure with an aviation fleet of 307 aircraft — each regiment had 61 bombers, 15 fighters, and 3 command and control aircraft.

Almost simultaneously, six airborne brigades were formed on the basis of the existing airborne units. They were also separated from the rear, including removing all aviation equipment from transport squadrons,

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because due to the lack of new bomb carriers, the aviation armies were equipped with elderly TB-3s.

For such interesting cases, there was no time to read the reports of the “volunteers” about the Spanish campaign, no one and no reason. Before any specialist has time to study the material, he is already being dragged to the wall. And the writers themselves, who had been abroad, should first be checked for recruitment by foreign intelligence services. We know the coats of arms of the Spaniards, favored by the authorities and soared to high positions, but the full list of those who participated and died is still not available to us. What borscht, when such things are in the kitchen. Here, Osip Pyatnitsky, a significant figure in

Comintern, was shot on the night of July 29, 1938, and until March 1940 he was a party member and head of the Political and Administrative Department of the Central Committee of the All-Union Communist Party of Bolsheviks.

That is why, when it "blowed out," Soviet fighters were still going into battle "in threes," high-speed SB bombers and flying at the speed of a TB-3 motorcycle were sent on missions in broad daylight in small groups and unaccompanied, "the best in the world of attack aircraft" went into battle without having instructions for combat use, not to mention such subtle matters as interaction and coordination of actions with other branches of the military. Colonel General M.M. Gromov, recalling the war, writes:

"The escort of bombers and attack aircraft was decided wrong with us. In these cases, the defense was completely ineffective, since our fighters were moving at a speed equal to that of the bombers. At such a reduced speed, they themselves were the victim of an attack: having no speed, they did not have their main strength - speed and maneuver. A significant multi-tiered excess of height was necessary (when they went in two layers at different heights). In such cases, enemy fighters could not attack our bombers without being attacked by our fighters, which from a height could quickly pick up any speed and stop the enemy attack.

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The Germans always flew in fighter aircraft in pairs; it was their main tactical unit. They always flew, keeping the speed at 9/10 engine power. Under these conditions, it was possible to catch up with their fighters only if our fighter was at a height, and much higher than that of the enemy. In addition, the pair had greater maneuverability. The leader in a pair flying at 9/10 motor power has the ability to calmly search for a target: his main attention is directed precisely to this. He has no danger of being attacked from behind. The follower, following behind, observes only the upper hemisphere, since it is impossible to catch up with him either from the side or from behind.

In our country, the smallest tactical unit for fighters was 3 aircraft. This tactical unit deprived them of maneuverability. This parade formation at the front is vicious. A pair is stronger both in maneuverability and focus of attention."

Guidance of aviation to a target from the ground and by 1945 had not really been mastered. From the memoirs of T.P. Puneva:

"The command radio station was with the pilot, the RBS-2 liaison was with the gunner-radio operator. The command station was supposed to provide communication between the machines in the air and the pilot with the airfield, and the communications one - "distant" communication with the ground. These radio stations did not have what is called quartz stabilization; The command pilots used to be turned off, because all this roar, noise, cacophony was hard to bear. Communication was disgusting. Sometimes, the command station worked so disgustingly that communication with neighboring machines had to be maintained through a radio operator, this is bad, efficiency disappears completely. In general, going into flight, they never knew how the stations would behave. Either the connection will be bad, or more or less. Never been good...

We often did not hear the earth, and they did not hear us. We have one interesting episode connected with the radio station: when the Berlin operation began, we suffered rather heavy losses. And from anti-aircraft fire, and from exterminate

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lei. Despite the fact that the war was coming to an end, the Germans flew to the last. The Germans did not fly some kind of chanthrope. If he entered and successfully - then write hello! Somehow two of us got shot down. There is an analysis, all, of course, downcast. The political officer of the regiment, Major Korotov, takes the floor: "Comrade commander," he is addressing the regiment commander, "I suggest: when our pilots are on combat

course or conduct an air battle, transmit inspiring slogans from the command post: "For the Motherland! For Stalin! Forward!" Comments are superfluous.

In July 1938, in the Far East, border skirmishes escalated into a military conflict on Lake Khasan, where the insolent Japanese military dared to "poke their pig's snout into our Soviet garden."

A black bunch circled the Uprimorskys at the heights. The enemy put a pig's snout into our Soviet garden.

The question of the ownership of two hills. was a purely technical, quite solvable diplomatic way. However, Stalin went to the aggravation. One of the motives was his desire to show the whole world that the beating of the commanders did not cause any damage to the combat capability of the Red Army. Indeed, the flight crew of the Far Eastern Air Force during the repression lost "only" 840 people. For example, in the 51st Spassk Light Bomber Aviation Brigade, 54 commanders and equipment were arrested within six months, including the brigade commander, chief of staff, assistant brigade commander, brigade engineer, head of the political department, brigade commissar, head of intelligence, head of the operational department, weapons engineer, five squadron commanders and assistant commanders, four flight commanders. In addition, a significant number of commanding officers of the brigade were fired.

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It was generally accepted that as a result of the purge "our ranks were strengthened", the commanding, commanding and Red Army personnel and political workers "rallied even stronger around the Bolshevik Party, the Soviet government and the leader of the peoples, comrade Stalin."

At the spring All-Army Conference of political workers, the AON-2 military commissar Verov ritually assured his beloved leaders of the country: "A special composition of the Far Eastern Army, at the first call of the party and government, is ready to lay down its violent heads for the cause of Lenin-Stalin.

By the beginning of the conflict, the Red Banner Far Eastern Front had 766 combat aircraft. In Primorye, the 48th assault (on R-10, SSSiR-5 aircraft), the 69th fighter (I-15 and I-16), the 25th high-speed bomber (SB) air brigade, several separate reconnaissance squadrons, military - married with P-/ aircraft, about a dozen separate detachments and units. They could be supported by units of the Air Force of the Pacific Fleet and the 2nd Special Forces Army. Since the spring of 1938, new DB-3 vehicles began to arrive at AON-2, but the crews did not have time to master them sufficiently. Aviation of the Far Eastern Front was commanded by the hero of the battles in Spain and China, 27-year-old brigade commander P.V. Rychagov, Stalin's nominee, who made a rapid career - a year and a half ago he was a senior lieutenant.

180 bombers and 70 fighters took direct part in the Khasan operation. The enemy, according to reconnaissance data, had up to 70 aircraft, mostly fighters, at the nearest Hunchun airfield.

On July 24, the Primorsky air group of the KDF Air Force was put on alert and began to relocate part of the aircraft fleet to forward airfields. During the relocation, the pilots suffered their first losses: having fallen into the fog, they crashed into the hill of I-16 captain Dmitriev.

Temporary sites were created at Filippovsky's estate, in Knevichi, Novo-Kievsky, and Barabash. The supply of fuel and ammunition was organized

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hastily, there was no telephone connection, the use of radio stations was forbidden for reasons of secrecy. The planes were overtaken much more than previously planned. There was a shortage of ground personnel, and the understaffing of trucks and special vehicles amounted to about a third of the staff. Due to the small number of gunsmiths for stuffing cartridge belts

attracted everyone who was at hand, including flight personnel, and even peasants from the surrounding villages.

Future Air Marshal G.V. Zimin was then the deputy squadron commander of a fighter regiment:

"Our squadron moved to the area of Lake Khasan at the Barabash airfield. Four more aviation squadrons were also moved there. At a small field airfield, sandwiched on both sides by mountains, there were 75 aircraft. On one side, the mountains rose steeply, on the other, more gently: a narrow mountain river flowed there. Cars stood back to back along the mountain along the entire length of the runway. There was nowhere to disperse the cars. The runway, squeezed by mountains, was, in fact, an airfield.

I flew to Lake Khasan from my old base with the order of the regiment commander to establish contact with the commander of the rifle division to organize interaction. I made contact, but the situation was unclear, and therefore no clear indications of interaction followed at that time. I was told: "Get an order and you will carry it out. Details will be specified later." I got the impression that the division commander himself did not yet have a clear idea of the situation. That's all I found out then."

In total, the forward group initially included 21 SSS attack aircraft of the 2nd assault aviation regiment, 56 I-15 fighters of the 40th, 48th fighter regiments and the Pacific Fleet Air Force, 12 SB bombers of the 36th high-speed bomber regiment. By the time the advance party's planes settled into their new locations, the conflict was already in full swing.

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On July 31, brigade commander P.V. Rychagov flew to the city of Voroshilov and assumed command of the aviation forces in Primorye. The commander of the Air Force of the 1st Army, Divisional Commander Ya.V. Sorokin. On the same day, Rychagov ordered to shoot down all Japanese aircraft that violated the border, and received instructions from Moscow to organize bombing and assault strikes on the territory occupied by the Japanese. However, supply problems and severe fogs delayed the completion of the combat mission for a day.

Around noon on August 1, a telephone conversation took place between I.V. Stalin, V.M. Molotov and K.E. Voroshilov with V.K. Blucher. The Kremlin strategists demanded that the bombers be immediately lifted into the air and attack the enemy. The marshal, referring to the difficult weather conditions, expressed fears that Korean villages and their own troops could suffer from blind bombardments. Such slobbering humanism made the general secretary extremely irritated: "Tell me honestly, Comrade Blucher: do you have a desire to really fight the Japanese? aviation will not be able to fulfill its duty due to fog. Who forbade you not to offend the Korean population in the conditions of a military skirmish with the Japanese? .. What does some kind of cloud cover mean for Bolshevik aviation if it really wants to defend the honor of the Motherland.

And, really, why stand on ceremony, in war as in war. Their own Koreans, numbering 172,000 people, on the basis of the decree of the party and government "On the eviction of the Korean population from the border regions of the Far Eastern Territory", have been safely deported to Central Asia for a year now - they just decided to master the intricacies of rice growing. And all the more I don't feel sorry for strangers, they are all completely Japanese itions.

Blucher had no choice but to order Rychagov to immediately raise the "Bolshevik aviation" and attack the samurai, "regardless of anything."

The first raid, which took place at 13.35, was attended by 30 I-15 fighters and 8 R-/ aircraft. They drop

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whether on Japanese positions fragmentation bombs AO-8 and AO-10, then fired from machine guns. According to ground observers, the falcons dumped the bulk of the ammunition into Lake Khasan. At 15.10, from a height of 4000 meters, 24 high-speed bombers from the 25th air brigade of the brigade attacked the Zaozernaya hill and the road near Digasheli in two groups, along which the enemy reserves advanced. A total of 66 FAB-100 and 78 FAB-50 bombs were dropped.

Another hour and a half later, two air strikes on the height of 68.8 followed. — a small hill where the Japanese infantry seemed to be stationed. First, the eight R-7 dropped their bombs. Then the I-15 fighters supporting it 1] carried four AO-10 fighters unloaded. Towards the end, 17 SSS attack aircraft and 13 I-15s processed the target with the same AO-10s and machine-gun fire. Some oddity is that height 68.8 is located on the eastern bank of Khasan and is marked on the map as the deployment line of the 119th Infantry Regiment. Since the infantry did not complain, it can be assumed that they did not hit the height, or they worked out on some other hill. In addition to the fog, the lack of large-scale maps of the combat area made it very difficult for the pilots to navigate. For the same reason, aviation could not provide ground troops with reconnaissance data or issue target designation to artillery; returning from the mission, the pilots could not accurately indicate in which place they observed or attacked the enemy:

“There were also such isolated cases when commanders and navigators of units, flying for the first time to the area of Lake Khasan, without first studying the area and not having a large-scale map with the terrain, definitely did not reach the indicated targets, dropped bombs on secondary targets and areas not occupied by the enemy.

One SB squadron, having lost detailed orientation in the target area, dropped bombs on its territory. And it was only by a lucky chance that our infantry was not hit by these bombs.”

The last flight at the end of the day was made by a dozen SB

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from the 3rd squadron of the 36th bomber regiment, launched from Knevichi. She was accompanied by I-15il-16 fighters. Efimov-Onisko box cassettes (roughly speaking, a bucket with an opening bottom) were installed in the SB bomb bays, with small AO-2.5 fragmentation bombs (30 pieces per cassette). From a height of 1000 meters they were poured onto Zaozernaya. Each link of high-speed bombers dropped bombs in one gulp, guided by the moment of their separation from the lead aircraft. At the same time, it turned out that fragments of bombs hit their own cars. The plane of the pilot Gavrish suddenly flared up and crashed into the ground, only one member of the crew managed to jump out with a parachute. Lieutenant Efimov's plane caught fire and made an emergency landing on a swampy meadow. Brigade commander Rychagov noted that “grenades do not always fall out of the basket reliably” and that he was afraid to bring a grenade on the tail of the aircraft back to the airfield. In total, out of 12 bombers, five were hit by shrapnel. On the plane of flight commander Tarakanov, 73 holes were counted, to which the Japanese had nothing to do, on the car of the pilot Varchenko - 35 holes.

The front air force command immediately organized an investigation. It was assumed that some of the bombs exploded prematurely, almost immediately after separation from the aircraft. The reason for this could be defects in fuses. Suspicious fuses were immediately withdrawn from the depots of parts. The AO-2.5 bomb was never used again in this operation. It also turned out that small fragmentation ammunition does not cause significant damage to the enemy, who had time to thoroughly dig into the ground. For this reason, Commander Stern recommended the wider use of high-explosive ammunition. Subsequently, the AO-8 and AO-10 bombs were used only by fighters and attack aircraft, and the SB switched exclusively to high-explosive bombs.

Rychagov's group operated in conditions of "clear skies", not a single enemy plane appeared in the air. The Japanese repulsed the attacks of Soviet aviation with fire

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machine guns and anti-aircraft guns. "From abroad" worked two anti-aircraft batteries (a total of 18-20 guns), deployed in the area of the village of Montokusan and on the banks of the Tumen-Ula River. The successes of the Japanese anti-aircraft gunners were not great. One I-15 received a hole, two SBs were slightly damaged by bullets; one gunner-radio operator was wounded in the arm. According to Soviet estimates: "Enemy anti-aircraft artillery, which took part in the battles in the area of Lake. Hasan showed her weak work."

Nevertheless | In August, the KDF Air Force lost two more SSS attack aircraft, which were destroyed at the airfield in Shkotov by the explosion of their own bombs.

On August 2, Soviet aviation began to work from the early morning. All day the P-/, 2] 1-ii of the 59th squadron hung in the air. One by one, they conducted reconnaissance of the combat area and neighboring sections of the border. The fog still interfered with both observation and bombing. At seven o'clock, 22 SB, 17 SSS, seven R-L and 13 I-15 went to Zaozernaya, but fearing to hit their own, they did not dare to bomb and turned back. On the way back, the planes dropped part of the unused bombs at one of the ranges, and part of them into Lake Talym and into a bay on the ocean coast. Two links landed with bombs, only after that it was discovered that instead of the usual AO-10, fragmentation-chemical bombs AOX-10 were suspended from the holders. The investigation showed that the senior lieutenant sent to the ammunition depot selected the bombs according to the consignment note in appearance, without looking at the markings. However, the markings did not tell him anything, just like the warehouse staff, including his boss. None of them could distinguish the AO-10 from the AOX-10.

The second sortie of Soviet aviation for bombing on August 2 took place an hour after the first. Twenty-four SBs attacked the western slopes of Zaozernaya from under the edge of the clouds from a height of only 200 meters. The Japanese met the planes with intense rifle and machine gun fire. On the bomber A.S. Zaporozhchenko's bullet interrupted the thrust of the rudder. The pilot is back

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to the Voskresensk airfield near Spassk, but when landing, he still beat the car.

The R-L planes were the last to go on a mission. Six cars took off safely from the site in Shkotovo, the seventh crashed into a hill immediately after takeoff and exploded. Six, accompanied by one I-15, dropped AO-10 and FAB-50 bombs on Bogomolnaya Hill.

The real effect of the day of combat work, judging by the results of the offensive of the 40th Infantry Division, was small.

This time, three Soviet aircraft were damaged by Japanese anti-aircraft gunners.

Then the aviation was inactive for two days due to bad weather. The command of the KDF was worried about the absence of Japanese aircraft in the air. It seemed to the staff of the headquarters that the enemy was somewhere saving up forces for an unexpected crushing blow. Anti-aircraft artillery and fighters were in a state of full combat readiness. Reconnaissance was carried out along the border and over the sea.

And so, on August 5, a Pacific Fleet submarine stationed in the Gulf of America reported by radio that 98 Japanese bombers were heading towards Vladivostok. Not 90, not 100, but exactly 98! Anti-aircraft batteries sounded an alarm in the area of the city, about 50 fighters were raised into the air, and no air alert has yet been announced in the city itself. However, at the airfield of the Air Force of the Fleet in Vozdvizhenka, the commandant turned on the siren. Panic broke out in the military camp: "...having heard the alarms, all the families, seizing their children and property, began to run from their houses anywhere in disorder, screaming." The fighters never found any Japanese bombers. What the submariners saw there is still unknown.

On August 5, the aviators received an order to support the offensive of the 39th Rifle Corps by all available means. Powerful aviation training was planned. The Commander of the KDF Air Force took a "bold decision" to use heavy bombers and high-explosive

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FAB-1000 air bombs "for the purpose of morally influencing enemy infantry." The main striking force was 89 SB and 41 TB-ZRN.

The operation began after the fog cleared. High-speed bombers went to targets in groups of 10 to 40 vehicles. Their targets were the Zaozernaya, Bezmyannaya and Bogomolnaya hills, as well as artillery batteries on the Manchurian side of the border. The first SBs approached the conflict zone at 15:15. Four groups of high-speed bombers arrived with a small spread in time - five to ten minutes. The last and largest group, which included 44 vehicles, dropped their bombs at half past three. Japanese anti-aircraft gunners managed to shoot down one plane. The second, lined, reached the Knevichi.

An hour later, TB-ZRN came out to Zaozernaya. The column of heavy ships was accompanied by 25 I-16 fighters. Below was a group of I-15s. On approaching the target, the planes began to accelerate on their descent. When the bombers approached the positions of the Japanese anti-aircraft gunners, 30 I-15s swooped down on the batteries, suppressing them with bombs and machine-gun fire. The return fire was inaccurate. TB-3 "in formation, in order, proudly passed over the Zaozernaya height", successfully bombed from a height of 1000 meters, finally dropping six 1000-kilogram bombs. Then just as proudly turned around and went back to Vozdvizhenka. On the retreat, the I-15s repeated their maneuver with an attack on anti-aircraft batteries. Four bombers received minor damage.

from fragments.

"Aircraft bombed brutally ...," G.M. reported to members of the Politburo. Stern. "It was creepy to watch."

In general, we all liked:

"After the explosion of 1000 kg of bombs, the height of Zaozernaya was covered with smoke and dust for several minutes. It must be assumed that in those areas where these bombs were dropped, the Japanese infantry was 100% disabled from shell shock and stones thrown out of the craters by explosions of bombs.

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The ground commanders, who observed the actions of the Air Force on 08/06/38, note that these actions of the Air Force made a great impression on our fighters and commanders. Explosions [000-kg bombs, the mass of aircraft used on the battlefield showed the fighters and commanders the indestructible strength and power of our Red Army.

Fighters and commanders, believing in our strength, in our victory, with high spirits on 08/06/38, after bombardment by aircraft, went on the offensive to the Zaozernaya height, defending their homeland.

A general assault began.

Aviation was now working in small groups, supporting the offensive of the ground forces. So, at half past five in the evening, nine SBs bombed the western slope of Zaozernaya. Fighters and high-speed bombers operated over the battlefield until seven in the evening. A total of 1592 air bombs were dropped with a total weight of 122 tons.

During the battle, the Soviet troops marked their positions with white banners, the pilots worked very carefully, not a single case of a blow to their own was noted.

The next day, having made sure that there were no Japanese fighters, the I-15 biplanes began to be used only as attack aircraft. [group after group went to "iron" the positions of the enemy. The strikes were delivered from the smallest heights both on the front line and on the other side of the border. By half past twelve the planes had dropped [28 AO-10 bombs and fired 40,000 rounds of ammunition. At the same time, up to 40 I-15s were in the air. Storming continued until the evening.

Sat appeared in the air in the afternoon. They were switched to attacks on artillery positions and concentrations of enemy infantry in the rear. They even bombed individual guns on the banks of the Tumen-Ula. In total, 115 SBs worked that day. From half past seven in the evening, I-15s began constant patrolling of the front line. The units succeeded each other and independently chose targets for themselves. Aircraft dispersed gun and machine-gun crews, shot groups of Japanese soldiers.

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On August 8, emphasis was also placed on the actions of attack aircraft. Only I-15s made 110 sorties. They successfully suppressed enemy batteries, forcing the calculations to scatter or hide in shelters. During daylight hours, traffic on the roads in the rear Japanese completely stopped - the planes were chasing even small groups of people, individual carts or horsemen. Enemy soldiers moved only off-road.

SSS stormtroopers attacked infantry west of Bezmyannaya and artillery in the Nanbon area. They dropped 256 AO-10 bombs from internal cartridges and fired 10,390 bullets. The enemy's lack of a sufficient amount of anti-aircraft weapons allowed attack aircraft to work from low altitudes, using the power of their machine guns.

Security forces flew in small groups against artillery positions in the areas of Namchensandong, Chuyusandong and Homoku.

At 15.15 on August 8, the headquarters of the Far Eastern Fleet received a telegram from People's Commissar Voroshilov, in which he forbade the further massive use of aviation. The telegram literally said: "... flying in a crowd without much sense is not only useless, but also harmful."

The next day, the intensity of Air Force operations dropped sharply. They made only 16 sorties: I-15s conducted reconnaissance.

On August 10, the I-15 was again used to suppress the fire of Japanese batteries. Having identified their location, the aircraft marked the positions with bomb explosions (using the same AO-8 or AO-10), and then made four or five approaches to shelling. Then artillery began to work on the spotted position. This tactic proved to be effective. They also tried to correct the artillery fire from the R-1 aircraft, but unsuccessfully - the radio set broke down. Although only 34 I-15s were deployed, enemy artillery stopped firing on almost the entire front. Japanese anti-aircraft gunners managed to shoot down one I-15.

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Report: Lieutenant Solovyov's plane crashed in Tumen-ULLa, the pilot died.

From noon on August 11, Voroshilov's new order began to operate, prohibiting the flight of the state border. Since the Japanese were driven out just on this very line, the order meant the actual cessation of aviation.

In just ten days of fighting near Lake Khasan, 1,003 sorties were flown. 4265 bombs of various calibers with a total weight of almost 209 tons were used up. The enemy shot down one SB and one I-15, 18 I-15s, seven SBs and four TB-3s were damaged. Two more I-15s were lost for non-combat reasons.

After the cessation of hostilities "on the border of Stalin's land", Soviet air units in Primorye continued the usual process of training and patrolling the border strip. An additional load for the bombers was the delivery of food to the border. They brought crackers, butter, cereals and shag. The fact is that prolonged rains led to flooding, and parts of the 39th Rifle Corps were cut off from supply bases. There were two ways to provide them: by sea through Posyet Bay and by air.

The bulk of the cargo was delivered by heavy bombers. They dropped special packages - cargo bags. On August 20, an unpleasant incident occurred during these operations. Seven TB-ZRNs from the 3rd Squadron of the 10th Heavy Bomber Regiment were supposed to transfer food to the area of Malaya Savelovka. But the navigator of the squadron, Captain Ibatulin, got lost. As a result, the planes penetrated into the Manchurian territory in the Saldingou area for 8-10 km. When the mistake was revealed, the bombers turned back, but on the way to the border they were fired upon by Japanese anti-aircraft gunners from guns and machine guns. Several cars received holes. The damaged plane of the commander of the detachment, Senior Lieutenant Mityanin, made an emergency landing near Mount Sugar Loaf.

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In general, the conflict at Lake Khasan for the Soviet aviation was more like an exercise in a situation close to combat. It was her actions that made it possible to reduce the number of victims of the Red Army. Therefore, in the devastating order of the People's Commissar of Defense No.-0040 dated September 4, 1938, dedicated to the "huge shortcomings" in the state of the Far Eastern Front and the "unacceptably low level" of combat training of the troops, the actions of the Air Force received a rather high assessment. It noted that "the Japanese were defeated and thrown out of our borders only thanks to the fighting enthusiasm of the fighters ... and also thanks to the skillful leadership of operations against the Japanese, comrade. Stern and the correct leadership of Comrade. Rychagov by the actions of our aviation". After the disbandment of the Far Eastern Front, brigade commander Rychagov was appointed to the post of commander of the Air Force of the 1st Separate Red Banner Army, and in October he was awarded the second Order of the Red Banner.

Having punished the uninvolved and condemned just anyone, the Kremlin calmed down and came to the conclusion: "In the battles with the Japanese at Lake Khasan, commanders, commissars, political workers and Red Army soldiers showed not only military enthusiasm, readiness to sacrifice themselves, defending the honor and inviolability of their territory. great socialist motherland, but also the ability to defeat the enemy.

The steel infantry fought bravely, And the cannons hit the enemy without a miss,

And the heights were poured with a shower of fire Mighty flocks of Soviet eagles.

In the order of the People's Commissar of Defense No.-113 "On the combat and political training of troops for the 1939 academic year", the task was in the first place:

"To complete the Bolshevization of the entire Red Army. Raise still higher the revolutionary vigilance of every commander, commissar, political worker, chief and Red Army soldier. Vigilantly see to it that the ranks of the Red Army are completely cleared of enemies of the people. Vooru

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to live the command cadres of the Red Army, party and non-party Bolsheviks with Marxist-Leninist theory, knowledge of the laws of social development and political struggle, taking as a basis the study of the "Short Course in the History of the CPSU (b)".

At the 18th Congress of the All-Union Communist Party of Bolsheviks in March 1939, Voroshilov enthusiastically reported on the unheard-of increased power of the Red Army in general and the air forces in particular: "I report that now you will often meet at our military airfields not only a fighter, but also a speeds that far exceeded 500 km per hour and an altitude of 14-15 thousand meters.

On the Khalkhin-Gol River, unlike Khasan, Japanese aviation was by no means idle, and the very first air battles revealed its superiority over the Soviet one.

Parts of the 57th Special Corps were to be covered from the air by the 100th Aviation Brigade under the command of Colonel Kalinychev, which included the 70th Fighter Aviation Regiment (14 I-15bis fighters and 24 donkeys type 5 and 6) and the 150th mixed regiment (29 SBI

15R-5Sch). The bombers were based at airfields in the Bain-Tumen area, more than 300 km from the conflict zone, and the fighters were based at the Tamtsag-Bulak airfield, located 100 km from Khalkhin Gol. All machines, with the exception of new ones and insufficiently mastered by the SB crews, were badly worn out, many were out of order. The same can be said about the personnel of the brigade and its command, languishing from idleness in the Mongolian outback: "ugly leadership", low discipline, lack of regular combat training, the pilots somehow mastered the technique of single piloting, but did not know how to fly in the ranks, poorly oriented on the ground, did not know the likely enemy, "did not have the skills of aerial shooting."

The headquarters of the corps believed that the main operational direction in the theater was the southern Gobi, warehouses were equipped there, and most of the

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part of emergency reserves and vehicles. In the Khalkhingol direction, no bases, nodes, communication lines, airfield sites were prepared, no calculations were made for the concentration and deployment of forces. To be honest, none of the red commanders, even the Mongol ones, had ever been in the "unpromising" region of Khalkhin Gol and could find it on the map with great difficulty. By the way, when needed, and the cards were hard to find. Everything turned out as in Gaidar's "Malchish-Kibaltchik": "Trouble came from where they did not expect it, the damned bourgeois attacked us."

The Japanese, on the other side of the border, had two railways, a network of dirt roads and an operational air group of Colonel Koziro Matsumuro - 20 K1-27 fighters (received the designation I-97 in the USSR), 6 Ki-30 bombers and 6 Ki reconnaissance aircraft. -15. The planes were stationed at the airfield of the Manchurian city of Hailar, about 160 km northeast of the river. The pilots had rich experience of the war in China.

On May 21, the Japanese shot down a Soviet R-5 aircraft that was communicating with the 6th Mongolian Cavalry Division. The next day, the first mid-air collision took place over Mount Hamar Daba. From the Soviet side, three I-16 fighters and two I-15bis took part in the battle, from the Japanese side - five fighters. In the ensuing battle, the I-16 of Lieutenant I.T. Lysenko.

Both sides were building up their forces. By May 26, Major Glazykin's 22nd Fighter Aviation Regiment (63 I-15bis and newer I-16 type 10 fighters) was transferred from the Trans-Baikal Military District to the area of Tamtsag Bulak. Arithmetically, the regiment was an impressive force with a good materiel, but the negative consequences of the campaign to combat accidents were already noticeably affecting the level of training of pilots: pilots were not trained in air combat techniques "because of the fear of flight accidents." A few days later, the 38th High-Speed Bomber Aviation Regiment arrived in Mongolia under the command of Captain Artamonov.

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(59 SB vehicles). During the redeployment, one bomber crashed and one fighter went missing.

The enemy also received reinforcements; on May 24, two squadrons of K1-27 (20 vehicles) arrived in Hailar. By May 27, the Japanese air force consisted of 52 fighters, six reconnaissance aircraft and six bombers. They were opposed by 203 red-star combat aircraft: 99 fighters, 88 high-speed bombers and 16 "light attack aircraft" R-5Sh. Thus, the Soviet Air Force had more than a triple numerical superiority.

By this time, the ground units of the Soviet troops entered the battle, forcing Khalkhin Gol and entrenched on the eastern coast.

On May 27, the I-16 squadron of the 22nd air regiment under the command of senior lieutenant Cherenkov, consisting of eight aircraft, was relocated to the forward airfield of the Khamar-Daba Ugrian, having

the task of intercepting enemy aircraft. During the day, the squadron made four alarm sorties. In the first three, the enemy could not be found, but two pilots burned the engines of their cars and made an emergency landing. For the fourth time, six "donkeys" took off to intercept the nine K! -27 and were mercilessly beaten. After the first attack, the "Stalin's falcons" took to flight, and the enemy, maintaining the excess, pursued them to the very airfield and shot them after landing. As a result, the Japanese, having no losses themselves, destroyed three and damaged two aircraft. Two Soviet pilots were killed (including the squadron commander), one was wounded.

The next morning, May 28, the Japanese attacked the positions of the Soviet-Mongolian troops on the bridgehead. The Soviet side did not expect such a dirty trick at all: the planes were not ready to take off, some orders canceled others, only three I-15 fighters were sent to the front line, which, as expected, did not return to the base. At about 10 o'clock, ten I-15bis of Balashov's commanding officer took off "to cover the ground troops and destroy the air enemy".

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Over the crossings over Khalkhin Gol it was suddenly attacked by 18 K!-27. As a result, six "hawks" were shot down, and one more, who managed to land, was shot and burned on the ground. Four pilots were killed in action, one was missing, two were wounded, and one pilot parachuted out of a burning plane. The enemy again left without loss.

The corps commander, division commander Feklenko, reported to the chief [of the General Staff of the Red Army, Shaposhnikov, the following:

"I ask you to give an answer immediately, as this is related to the planning of the battle on May 29:

1. Enemy aviation dominates the air.

Western bank of the river Khalkhin-Gol is completely open and does not allow any maneuver, with the exception of the Dzuk-Khan-Ula mountain area, where the terrain is easily crossed.

3. Our aviation is not able to cover the ground troops until the crossing is captured...

4. Hold the eastern bank of the river. Khalkhin Gol is possible, but with heavy losses from enemy aircraft.

5. With the onset of darkness, I ask you to withdraw units to the western coast and defend it by bombing the enemy ..
(c) with the task of destroying the enemy's manpower."

The Japanese all-metal Nakajima K1-27 monoplane fighter (maximum speed 450 km/h at 3500 m), armed with two 7.7 mm synchronous machine guns, was distinguished by excellent maneuverability and rate of climb, combined with high stability and ease of control, and their pilots had excellent skills. The disadvantage of the fighter was weak armament, the absence of an armored seat and gas tank protection. On the other hand, all Japanese vehicles were equipped with radio receivers, and starting with the flight commander, with transmitters. The control of Soviet aircraft in the air was carried out according to the principle "Do as I do", the fighters did not have radio communications, since even in 1939 there was no consensus on this matter. The Air Force Research Institute insisted on equipping fighters with both communications and navigational radio

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equipment, and, for example, the heroic guy P.V. Rychagov proposed to remove "extra" instruments from the fighters so that they "do not interfere" with the pilot in the air. Naturally, in an air battle, control of the group was lost almost instantly, and the leader turned into an ordinary pilot. Guidance of fighters from the ground was carried out by laying out white panels in the form of arrows, pointing in the direction where the air enemy was seen (Deputy

Chief of Staff of the Red Army S.A. Pugachev in September 1925, reporting on the results of maneuvers in three military districts, noted: "Especially draws attention to the primitiveness of the means used to communicate aviation with ground forces. In this respect, the Red Army lagged far behind Western Europe. Nothing has changed "in this respect" in fourteen years. And commander S.A. Pugachev was reminded that he was not just a deputy, but a deputy of the "head of the fascist conspiracy" Tukhachevsky, who "served capitalism servilely". In October 1939, Semyon Andreyevich was sentenced to fifteen years of captivity, where he died).

According to our pilots, the K1-27 "successfully fought the I-16M-25 and easily beat the I-15".

The tactical training of Soviet pilots and commanders was not up to the mark. TO; In addition, the "treacherous enemy" used his aircraft in large groups, and the command of the Air Force of the 57th Special Corps raised from 3 to 10 vehicles into the air. In just a week, the 100th air brigade lost 16 fighters, 1 attack aircraft, 11 engines and 10 pilots. In addition, there were 4 catastrophes, 9 accidents and 13 aircraft breakdowns. "Stalin's falcons" lost dry to the "imperial". As the secret "Description of Combat Operations in Mongolia" frankly stated: "The air forces of the 57th Special Corps suffered an obvious shameful defeat ... Japanese bombers bombed our troops with impunity."

Until mid-June, Soviet aviation did not appear in the Khalkhin-Gol area.

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Discouraged by the unpleasant results, the Moscow leadership took urgent measures to strengthen the Air Force grouping in Mongolia. At the beginning of June, a special group of 48 most experienced pilots and specialists arrived in Tamtsak-Bulak, who had gone through combat school in Spain and China (almost half consisted of Heroes of the Soviet Union), headed by the Deputy Chief of the Red Army Air Force Commander Ya.V. Smushkevich. They immediately set about restoring order in the units, combat training of pilots, organizing supplies, and preparing new landing sites. Smushkevich took command of aviation. Divisional commander G.K. took command of the entire Soviet-Mongolian grouping. Zhukov.

By June 21, there were 150 fighters, 135 bombers, 15 attack aircraft - 300 combat vehicles at the field airfields in the Khalkhin Gol area. Fighters were mainly based on forward sites (25-50 km from the front line), and bombers - at a distance of at least 150 km. The forward command post was located on Mount Khamar-Daba, the rear one was in the area of Tamtsak-Bulak.

The enemy air force consisted of 126 aircraft, including 78 fighters and 30 bombers. Most of the Japanese aircraft were based at the airfields of Hailar and Changchun. The second of them was located almost 600 kilometers from the combat area.

In the twenties of June, "battles of local importance" took place on the land front, and meanwhile, over the Mongolian steppes, the largest air battle flared up, during which Soviet aviation tried to take revenge.

On June 22, a total of 105 Soviet fighters took off from different airfields and headed for the Khalkhin Gol region and Lake Buir Nur. The first to enter the battle was a group of the 22nd regiment, consisting of a squadron of senior lieutenant Savkin (15 I-16s) and a squadron of captain Stepanov (nine I-15 bis). Over the Khabar-Daba mountain, they were attacked from above by "at least 30 aircraft" about

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tivnik. Commander Savkin was immediately wounded and left the battle, and his subordinates - "do as I do" - took this as a signal to retreat and scattered in different directions. The Japanese burned Savkin's plane on the ground, but the senior lieutenant remained alive. Then the "samurai" switched to

biplanes and shot down three "encores". At that moment, a squadron of "donkeys" of the 70th air regiment appeared on the horizon, and the enemy, without engaging in battle, flew to his territory. A little later, two more groups of Soviet aircraft met with a group of Japanese in the area of the mountains Bain-Tsagan and Bain-Khoshu. In the ensuing battle, 13 I-15bis and three I-16 fighters were shot down. The commander of the 22nd Fighter Regiment, Major Glazykin, and five more pilots, as well as five pilots from the 70th Regiment, were killed in action. In the end, the Japanese fighters, having used up fuel and ammunition, "turned to flight."

According to the Soviet version, the enemy, having "about 120 aircraft", lost 25 fighters that day (later they counted and received 31), our losses amounted to 17 aircraft and 1] pilots. The Japanese, who in the morning had only 18 serviceable K1-27s in stock, chalked up 57 Soviet aircraft to their account, writing off irretrievably seven of their aircraft and four pilots. In general, both sides considered themselves victorious and gave full rein to their fantasies in the reports. Having received an unexpectedly strong rebuff, the Japanese command urgently transferred another 59 fighters to forward airfields.

On June 24, battles for air supremacy flared up again. In the morning, two eight I-16s and nine I-15bis of the 70th Air Regiment flew out to intercept twenty Japanese fighters that had appeared over Khalkhin-Gol. According to the Soviet pilots, seven enemy planes were shot down. The Japanese managed to shoot down two I-15bis. In the afternoon, for the first time, SB bombers went on a combat mission: 23 vehicles of the 150th regiment successfully bombed the Japanese troops on the eastern bank of the river and returned without loss. In the evening, another air battle took place, in which 54 Soviet destroyers took part.

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la and about 40 Japanese. At the end of the day, each side lost two cars with two pilots and reported on the "destruction" of 16-17 enemy vehicles. On June 26, 81 Soviet fighters and 60 Japanese fighters clashed over Lake Buir-Nur.

In order to change the balance of power, the command of the Kwantung Army decided to launch a surprise attack on the airfields where Soviet aviation was based. In the early morning of June 27, 30 bombers under the cover of 74 fighters attacked the stations of the 22nd Fighter Aviation Regiment in the area of Tamtsak-Bulak and the 70th Fighter Aviation Regiment in the area of Bain-Burdu-Nur.

The Japanese managed to achieve tactical surprise, the "donkeys" of the 22nd regiment took off already during the raid. However, the "samurai" bombed extremely badly - they practically did not hit the airfield. In a short "counterattack", the Soviet pilots shot down two enemy fighters and two bombers, losing three of their own. The 70th regiment was less fortunate: 14 aircraft were destroyed on the ground and on takeoff - nine I-16s and five I-15 bis, regiment commissar Mishin and six pilots were killed. At 1300, the Japanese raided the Bain-Tumen rear airfield, where SB bombers and a group of cover fighters were stationed. Here the "samurai" "missed" again, the Soviet losses amounted to one I-15bis and one killed minder. In total, at the end of the day, the Soviet aviation group missed twenty combat vehicles. It can be said that they were lucky, since the Japanese bombed from high altitudes and did not practice attacking ground targets with fighters.

The headquarters of the Kwantung Army joyfully trumpeted the destruction of 148 Soviet aircraft on the ground and in the air. TASS issued a rebuttal, which stated; "Two houses in Bain-Tumen were damaged by the bombardment, while 5 people were injured." The Pravda newspaper responded on June 29 with the article "Ignorant braggarts from the headquarters of the Kwantung Army", ridiculing "modern Munchausen trying to pass off black as white"

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and leading to "true losses" on both sides from June 22 to June 28: Japanese - 90 aircraft, Soviet - 38.

Propaganda is propaganda, but it can be stated that, despite the quantitative and qualitative growth, in June the Soviet Air Force failed to turn the tide of the air battle in their favor. Combat losses amounted to 44 fighters - the Japanese lost half as much. Bi plan I-15bis showed its inability to fight on equal terms with K1-27; he was inferior to the "Japanese" in all respects, except for firepower, and low speed did not allow him to catch up with the bombers. Subsequently, the "encores" remaining in service were gradually withdrawn from the regiments, forming airfield cover squadrons from them.

The level of flying skills, excellent shooting skills of most Japanese pilots at the beginning of the conflict were noticeably higher than those of Soviet aviators. Colonel Kutsevalov pointed out in his report: "Japanese pilots are well trained in group air combat. They follow the rule "to beat not the one who beats you, but the one who beats your comrade", demonstrate the principle of mutual assistance, at critical moments throwing their victim to rescue a comrade ... The enemy always strives for height, surprise, secrecy ". Thanks to this, for quite a long time, "air supremacy of the numerically smaller enemy remained with him." A veteran of the Spanish war, senior lieutenant Yamanov wrote: "Samurai always have an advantage in height, do not rush to attack at the sight of a large group, but have singles who jump out, give a burst and get back into line. In a broken formation, they always climb up. They shoot from any position"; we have: "The leaders of the groups, seeing the enemy, go at full throttle, stretch the group, enter the battle in a non-compact manner and often from unfavorable positions ... They were more afraid of their own than the enemy, and it was difficult to choose a target. They chased single planes in large groups, interfering with each other.

In Soviet flying schools and units, group interaction techniques were practically not practiced.

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"We teach a lot about individual combat of individual aircraft, but they do not teach group combat. And on Khalkhin Gol, all the battles are in large groups, "wrote the pilot Filippov. Senior Lieutenant Bobrov: "It was striking that the I-97s were always 500-1000 meters above us." Right in the war, they learned to keep the formation, use the sun and clouds for a sudden strike, correctly distribute forces, take into account the lead when firing, echelon battle formations in height and not rush into the attack "headlong".

In early July, Soviet aviation in Mongolia received samples of new equipment from the Union: 20 "secret" I-153 Chaika biplanes (at first they were even forbidden to cross the front line) with a more powerful and high-altitude M-62 engine and seven cannon I-16P. In total, there were about 300 aircraft available, the number of Japanese aviation was estimated by intelligence at 312 aircraft and was tripled.

On July 2, "the second period of the Nomonhan Incident" began. Under the cover of a distracting frontal attack on the Soviet bridgehead, the main grouping of General Kobayashi, having made a roundabout march, crossed Khalkhin Gol on the night of July 3, occupied Mount Bain-Tsagan and moved south to the Soviet crossing. At dawn, aviation entered the battle. Japanese bombers made sorties to support their ground forces, losing four aircraft from anti-aircraft fire and fighter attacks. At 11] G.K. Zhukov launched the 1st Tank Brigade into a counterattack, and at the same time, 73 SBs from a height of 3000 meters dropped bombs on enemy positions near Khalkhin Gol, Khailastyn Gla and Lake Yanhu. At 5 p.m., the bombers of the 150th regiment made another raid. The enemy managed to shoot down three SBs. Several times during the day, the Japanese positions on Mount Bain-Tsagan were stormed by I-15bis. Fierce battles raged for another two days and ended in the defeat of the enemy. According to the results of the "Bain-Tsagan battle", Soviet losses amounted to 16 vehicles, including 12 bombers. The Japanese acknowledged the death of four of their aircraft.

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SBs could no longer break away from enemy fighters due to speed, which was instantly confirmed in several skirmishes, where K1-27s were able to intercept groups of bombers coming without cover. In addition, the bomber group had SBs with M-100 and M-103 engines, and the entire "squadron", observing the formation in the air, was forced to equal "on the last one". As a result, the flight took place at altitudes of 4000–4500 meters at speeds of 280–300 km/h, and the vehicles became prey for anti-aircraft artillery, especially since anti-aircraft maneuvers were not taught "at school" either. Due to significant losses, the SB was ordered to raise the bombing ceiling to 7000 meters, which could not but affect the effectiveness of the application, and accompany them with a strong fighter escort. Yes! The bombers did have walkie-talkies, but they were not used to communicate with the ground and aim at the target - this was prohibited due to fear of radio interception.

Heavy TB-3s were also used at Khalkhin Gol, which formed a separate detachment of night bombers, numbering 23 vehicles, headed by Major Yegorov. They joined combat work on the night of 7 to 8 July. Having loaded two tons of "payload", the aircraft at dusk flew out on a mission in groups of 3–9 aircraft, but each carried out bombing individually from a height of 1500–2000 m. August. During this time, they made 160 sorties, only ONE "ship" was lost, which crashed during landing. In addition, a group of old aircraft with M-17 engines was used for medical and cargo transportation.

On July 15, the 57th Special Corps was transformed into the First Army Group, which was headed by the Divisional Commander of the Civil Code. Zhukov. Brigade commander A.I. became the commander of the Air Force of the 1st AG. Gusev, and the commander of fighter aviation - Major I.A. Lakeev. The 22nd and 70th Fighter Aviation Regiments were joined by new squadrons and individual pilots arriving from the territory of the Soviet Union.

On the morning of July 21, the largest air battle since the beginning of the conflict took place. From the Soviet side teaching

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There were 157 aircraft - 95 I-16s and 62 I-15bis, more than 40 fighters from the Japanese. The battle, which began in the region of the Bain-Khoshu mountains, soon spread to a large territory on both sides of the front line and broke up into a number of separate skirmishes that lasted more than an hour and a half. Five I-15bis and four K1-27s were shot down. The next day, three air battles took place, in one of which the pilots of the 56th Fighter Aviation Regiment, which had just arrived at the theater, made their debut - a total score of 4: 4. The Japanese probably had some kind of national holiday that day, otherwise it is impossible to explain from what hangover they reported the destruction of 52 donkeys and [11 SB!

However, the 38th Regiment continued to suffer losses. Only on June 24, as a result of enemy action, 9 bombers and seven crews were killed. The fighters of the 56th Regiment, which provided cover, did not cope with their task and themselves lost 4 vehicles. The Japanese shot down two fighters and two bombers.

On July 29, Soviet pilots finally got even for losses and failures in previous battles. At 7.15 am, 20 cannon and machine-gun I-16s from the 22nd regiment attacked the field airfield north of Lake Uzur-Nur. On the airfield, 11 K1-27s were preparing for departure. The attack took the Japanese by surprise. From the cannon bursts, the gas tanks of two fighters exploded. At 0940, two squadrons of I-16s struck again. This time they attacked the Japanese fighters at the moment of landing approach. Three K1-27s were shot down, another one was burned on the ground. As a result of these raids, the enemy lost six vehicles, five were seriously damaged. On the same day, the SB bombed the troops and warehouses of the enemy in the Nomon-Khan-Burd-Obo area, three "hawks" did not return from the mission.

In July, Soviet combat losses amounted to 79 vehicles, including 24 high-speed bombers, Japanese - 41 aircraft.

The Soviet side gradually realized its numerical advantage, the "score" in air battles leveled off.

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New squadrons of I-153 and I-16 type 18 with the M-62 engine were constantly arriving from the Union, as well as an experimental group of top secret donkeys armed with RS-82 rockets. Bomber aviation was replenished with the 56th bomber aviation regiment from the Belarusian military district. True, Voroshilov did not send bombers "with speeds that far exceeded 500 km per hour."

K. | August Aviation of the 1st Army Group consisted of 525 aircraft, including 321 fighters. In the frontline zone, the construction of new airfields and landing sites continued, the network of VNOS posts was significantly expanded, interaction between aviation and ground forces improved, representatives of the Air Force were appointed to the infantry and artillery units, and logistical support was established. A special detachment of camouflage sappers arrived with 75 mock-ups of I-16s to set up false airfields.

The Japanese deployed two more fighter squadrons and increased the strength of their aviation group to 200 aircraft.

On August 2, 23 I-16s from the 70th Regiment, under the cover of 19 "gulls", launched a sudden assault attack on the airfield 18 kilometers northwest of Jinjin-Sume and, as in an exercise, shot down enemy aircraft standing on the "line", destroying six vehicles and damaging the rest. Two major air battles took place on August 5, August 12, 137 I-16s from all three Soviet regiments fought against about 60 Japanese fighters. According to Soviet data, 11 K1-27s were shot down in the battle. Ours lost two planes and one pilot. On August 19, the pilots of the 22nd regiment again stormed the Japanese airfield and burned two enemy fighters. On the same day, the Security Service once bombed the Khalun-Arshan railway station, through which the main flow of supplies for the Japanese front-line units went.

On the eve of G.K. Zhukov General Offensive Soviet Aviation Group

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ka reached its maximum strength - 580 combat vehicles and seized air supremacy.

On August 20, Soviet-Mongolian troops began an operation to encircle and destroy Japanese troops on the eastern shore of Khalkhin Gol.

At 5.45 am, 150 bombers attacked the Japanese positions under the cover of 144 fighters. SB bombed aimingly, from heights from 2500 to 3000 meters. Special assault groups I-16 with a total number of 46 aircraft suppressed the fire of anti-aircraft artillery. During the raid, not a single K1-27 appeared over the battlefield. Fifteen minutes before the end of the artillery preparation, the second wave of bombers appeared over the battlefield - 52 SB, accompanied by 162 fighters. During two massive raids, not a single Soviet aircraft was lost. In addition, our pilots carried out another successful attack on the advanced airfield and burned five fighters in the parking lots, as well as a K1-34 twin-engine transport aircraft, nine more K1-27s were damaged.

2] August, the Soviet offensive continued. The troops of the 1st Army Group, with two enveloping strikes from the north and south, sought to encircle the Japanese grouping.

In an attempt to regain the lost superiority, the command of the Japanese Air Force decided to inflict a series of massive attacks on Soviet airfields. The operation involved 24 K1-30 single-engine bombers, 12 K1-21 twin-engine bombers and 15 K1-36 attack aircraft. Fighter

the escort was provided by 88 fighters. The first wave started at dawn. The enemy was detected in advance by VNOS posts, and Soviet fighters met the attackers already in the air. An air battle broke out 15-20 km north of Tamtsag-Bulak, in which 123 I-16s, 51 I-153s and 30 I-15bis took part on our side, and up to 50 bombers and up to 80 K from the Japanese side! -27. According to Soviet data, 1] fighters and two single-engine bombers were shot down in the battle.

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enemy. Our losses are six fighters and three pilots. Some of the bombers still broke through to the airfield, but only one of the bombs they dropped hit the target, destroying the SB. Approximately an hour later, 32 I-16s from the 56th air regiment took off towards the second wave of bombers - 20-25 aircraft. This time, the Japanese were intercepted over the eastern shore of Khalkhin Gol and three bombers were "cut off". At 14.45, 58 I-16s and 11 I-153s from the 22nd Regiment, flying out to attack, met another group of Japanese, which included about 15 bombers and 25 fighters. The Red Star vehicles rushed to the attack and, according to the reports of the pilots, shot down three K-30s and seven K1-27s without loss. The last air battle took place at about 17:00 - 52 I-16s and eight "gulls" met about 60 enemy aircraft over the banks of Khailastyn-Gol and shot down two, losing one.

The main outcome of the day was that the attempt of the "samurai" to seize the initiative ended in failure, although they announced the destruction of 84 Soviet aircraft, including 19 bombers. In fact, Soviet Air Force losses were seven fighters and five SBs, with four bombers shot down by anti-aircraft fire.

From August 22, the Japanese redirected their bombers to support the ground troops, but they did not succeed in this either.

A new "splash" of air battles was noted on August 25 - the decisive day of the Soviet offensive operation. On that day, an encirclement closed around the Japanese grouping on the eastern coast of Khalkhin Gol, and the air, according to the memoirs of Konstantin Simonov, "simply seethed with airplanes":

"There was a lot of aviation on both sides, and for the first two months the superiority was on the side of the Japanese, and only in the third month, after a stubborn struggle, did it pass to us. By the end of the fighting, an especially large amount of aviation was collected from our side. On the first day of our August offensive, we took into the air almost a thousand

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years. As for the air battles that took place over the steppe, then I have never seen so many aircraft in the air at once in the space visible to the eye.

Japanese aviation, reinforced by Kawasaki K1-10 biplanes (our designation I-95) - all that the Kwantung Army could scrape together - tried to help their encircled troops, but their attacks did not bring success. The final point was set on August 31, when the defeat of the Japanese grouping was completed, although air battles continued until mid-September. During the Soviet offensive, the enemy lost at least 43 aircraft.

For the Japanese, such an expense of military vehicles was an unaffordable luxury, especially considering that the Nakajima plant assembled one fighter a day, and the entire army aviation consisted of about 1000 aircraft. However, the main weakness of the Japanese Air Force was the catastrophic shortage of pilots, for the training of which there were only four aviation schools (in the Red Army in 1937 there were 18 aviation schools, in 1939 - 32, by May 1, 1941 there were already 100 of them). Captain Kootani in the report already cited, as the greatest achievement of the USSR, spoke about the creation of a base for mass training of flight personnel, about the huge work to popularize aviation carried out by Osoaviakhim, about dozens of

flying clubs with training airfields and airplanes. And, as for the biggest problem - about the conservatism of the Japanese, their skeptical attitude to aviation technology:

"In Japan today, they look at airplanes like this - if you fly, you will fall, and it is considered strange if serious people are flying. Forgive me, but probably among those present here there are people who are unlikely to fly even on a passenger plane. It's embarrassing for me to say this in front of older people, but if there are people among today's youth who are afraid of airplanes and are afraid of flying, then you need to influence them...

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It is desirable to contribute to the elimination of fear of aviation among the people or to create such a mood that even if there is some danger, then in the interests of national defense, young people should direct their forces towards aviation. This is mostly prevented by fathers and mothers. I want to say whether the elders are not the last obstacle to the development of aviation in Japan. It is necessary to resolutely raise the campaign for the popularization of aviation, and if the USSR has 150,000 pilots, then Japan should have at least 50,000.

(Not even two weeks had passed after reading the report, as the head of the Central Aeroclub of the USSR named after Kosarev, commander M.S. Deich was arrested and "received a well-deserved retribution from the punishing hand of Soviet justice", and after him - the general secretary of the Komsomol Central Committee A.V. Kosarev, who was exposed as a politically bankrupt "double-dealer and thoroughly rotten man." The head of the Osoaviakhim, commander of the Republic of Poland Eideman, still in June 1937, to put it in Voroshilov's words, was "wiped off the face of the earth, and his memory was cursed."

On August 28, 1939, a change of cabinet took place in Tokyo, and the new government approached Moscow with a proposal for an armistice. Both sides were not interested in the escalation of the conflict, especially after the non-aggression pact between the USSR and Germany was signed on August 23. This meant that only a few days remained before the start of the Nazi invasion of Poland, and such a development of events, according to Stalin, inevitably led to the Second World War. Militaristic games in the Mongolian sands - "small episodes" - had to be curtailed. On September 12, more than 20 experienced Soviet pilots, led by Smushkevich, flew to Moscow. In the capital, they had a conversation with Stalin, a gala dinner in the Faceted Chamber of the Kremlin, and an order to immediately go to the western districts, where the "Great Training Camp" was held - the Soviet troops were finishing the last preparations for the Liberation Campaign.

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Belarus native,

Ukraine golden,

Your light borders

We will defend with bayonets, with bayonets!

Officially, hostilities in the region of the Khalkhin Gol River ended on September 15. From the Soviet Mongolian side, over 900 aircraft took part in them, from the Japanese - more than 400.

In this case, according to the estimates of "our specialists", based on the unfounded reports of the flight crew, the enemy managed to lose either 646 or 660 vehicles. Soviet losses amounted to 207 aircraft and 159 people killed and missing. However, "their specialists" turned out to be even cooler and brought out completely astronomical numbers - roofing felts 1260, or 1370 Soviet aircraft destroyed by the valiant imperial aces and anti-aircraft gunners from May 22 to September 15.

As they say, the truth is out there somewhere. The real losses of the Soviet Air Force amounted to 250 vehicles (including 52 Cb), of which 42 (16%) were non-combat losses. The Japanese Air Force lost approximately 170

aircraft and 180 people.

On the one hand, at Khalkhin Gol, Soviet pilots gained valuable combat experience, and commanders gained practical skills in operational management and organization of combat work, which remained unclaimed. On the other hand, a number of serious shortcomings were revealed in the training of personnel and the organization of the work of the rear in a combat situation, which the winners preferred not to notice.

| September 1939 Hitler attacked Poland. In response, France and England, in the interpretation of the Fuhrer, "intervened in matters that did not concern them" and declared war on Germany, and then all the British dominions came forward. The fire in Europe flared up. Hitler miscalculated. Stalin's Marxist analysis did not disappoint.

On the other hand, the "blitzkrieg" was a brilliant success, and the Western allies were in no hurry to die for the Poles and "democratic values". German motorized

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and tank formations, having knocked down parts of the cover, started fighting with the main forces of the Polish army. German aviation, which had a qualitative and fivefold numerical superiority, quickly gained air supremacy. Its massive raids on administrative centers, railway stations, main highways and communication centers made it difficult to complete the mobilization and disrupted military transportation. The defense along the border began to crack and fall apart already on the third day of the war. By mid-September, the Polish army, which adhered to the cordon strategy and tried to hold every inch of Polish land in all directions, was demonstratively defeated by the Wehrmacht.

Stalin also did not sit idly by. Covert mobilization was carried out in seven districts, and the Ukrainian and Belorussian fronts were formed on the basis of units and formations of the Kyiv and Belorussian military districts. Ground forces were united into army groups, later transformed into armies. These groups received their air forces, mainly in the form of military aviation. In intervention - this is how V.M. Molotov in a conversation with the German ambassador Schulenburg - should have participated 3298

aircraft.

The Red Army moved westward at dawn on September 17, having the task of "defeating the pan-bourgeois Polish troops with a lightning-fast, crushing blow and freeing the workers, peasants and working people of Western Ukraine and Western Belarus." However, there was no need to fight. The "privatization" of the eastern regions of Poland took place without serious excesses, since the Poles practically did not offer resistance to the Soviets. Soviet aviation was engaged only in reconnaissance and scattering leaflets, the remnants of Polish aviation - mainly training vehicles - flew to Romania.

The Wehrmacht and the Red Army met on the rivers Bug and San, exactly carrying out the plans developed by both sides "in the spirit of good and friendly interaction."

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The Bolshevik-Nazi brotherhood, sealed with Polish blood, was officially confirmed on September 28 in the Kremlin with the signatures of Molotov and Ribbentrop under the agreement "On friendship and the border between the USSR and Germany". Witnesses say that Stalin these days was as happy as ever, the prospects that opened up were breathtaking. The negotiations were held in the warmest and most relaxed atmosphere. Hitler, through Ribbentrop, confirmed his readiness to comply with all the conditions of the secret additional protocols, agreed to exchange Lithuania for a piece of Polish territory between the Vistula and the Bug, wished success "In revising the situation in the Baltic states" and offered to participate "in big affairs" - "to consider the possibility of cooperation in relation to England", which rudely rejected the Fuhrer's proposals for peace. Stalin assured the Fuhrer in a reply that: "If" Germany gets into a difficult situation, then she can be sure that

that the Soviet people will come to Germany's aid and will not allow Germany to be strangled. The Soviet Union is interested in a strong Germany and will not allow Germany to be thrown into earth."

At the banquet, during which many toasts were pronounced to the leader of the Soviet people and the Fuhrer of the German nation, to Molotov and Ribbentrop, to good neighborliness between the new settlers in the former Polish "apartment", to the bright future of "two states of real socialism", and there was a lot to drink, Stalin, more than ever pleased, declared: "The Soviet government is not going to enter into any relations with such snickering states as England, America and France. Chamberlain is an idiot, and Daladier is an even bigger idiot."

The "revision" of the Baltic countries did not take much of the Kremlin's time. In October-November 1939, Soviet garrisons, naval and air units (9 air regiments) were placed on their territory on a voluntary basis.

But the government of Finland turned out to have "a lot of guts." Unlike the previous "spheres" Stalinist

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interests, Finland did not want to "reorganize" either territorially or politically. She brazenly rejected the treaty on foreign military bases imposed on her and refused the "fair demands" of the Soviet leadership, such as "withdrawing her troops away from Leningrad" or exchanging the Karelian Isthmus and the Rybachy Peninsula for the Karelian tundra.

On November 30, 1939, having broken the non-aggression pact, the USSR, without declaring war, attacked the "beautiful Suomi" with a treacherous rapist.

Tanks are breaking wide clearings, Planes are circling in the clouds, The low sun of autumn Kindles lights on bayonets.

The Soviet interpretation of events, of course, was quite different: parts of the Leningrad Military District, in response to the "outrageous provocations and hostile policy of the ruling circles of Finland," were forced to cross the border and "start to repulse anti-Soviet actions."

At 8.30 am, the troops of the Leningrad Front, commanded by the commander of the 2nd rank M.A. Meretskov, after a half-hour artillery preparation, four strike groups crossed the state border. During the action of retribution for "provocations", it was planned to defeat the "White Finns" on the Karelian Isthmus and north of Lake Ladoga in 8-10 days and create conditions for an attack on Helsinki and the occupation of the entire country. The capabilities of the opposing sides were incommensurable, and therefore Moscow intended to demonstrate to the world a spectacular "blitzkrieg", no worse than the German one.

As part of the Finnish aviation, there were 145 combat vehicles. Including 118 serviceable ones. Organizationally, they were divided into three regiments (epyugutten { — GeK), the regiments, in turn, into groups (Geto]euae — III). In addition, two separate air groups were available for operations

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at the maritime theatre. Since Finland declared itself a neutral country and adopted a purely defensive doctrine, fighter-interceptors formed the basis of its Air Force. The most recent were 36 licensed Fokker O-XHT, which was a monoplane of mixed design with fixed landing gear, armed with four machine guns and reaching speeds of up to 410 km/h. In addition to these aircraft, there were 10 Bristol "Bulldog GUA" biplanes purchased in England with two synchronous Vickers and parade speed of 330 km/h and 9 archaic Gloucester "Gamecock Mk.P" models of 1926 — two

machine gun and 250 km / h. All fighters were brought together in [(EB-2), which was entrusted with the task of protecting the Finnish sky.

The Fokker SH and Fokker SU-E biplanes - there were 36 of them in the GeK-1 - were used as light bombers, attack aircraft and reconnaissance aircraft. The bomber regiment [EK-4] was armed with 14 twin-engine Bristol Blenheim Mk. - British analogues of the SB.

Naval aviation consisted of eight floatplanes.

The Finns tried to compensate for the lack of combat vehicles with good individual skills of pilots combined with modern tactics. Lieutenant Colonel Richard Lorenz, commander of the Fighter Aviation Regiment (JeK-2), went on internships in units of different countries, in particular, the German squadron "Richthofen" and introduced many useful improvements in Finnish aviation. Just like the Germans, the Finnish fighters abandoned the flight of three aircraft as the main tactical unit in favor of two interacting pairs. According to Finnish instructions, fire on a bomber was prescribed to open from a distance of 150 meters, but pilots were taught to shoot from a distance of no more than 50 meters, minimizing the chance of a miss. Finnish generals could not even think of fighting for air supremacy; pilots were ordered

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avoid open battles with red star fighters and, like ground forces, use "guerrilla tactics".

Soviet generals, having 2446 aircraft, including 469 combat vehicles in the Baltic Fleet, "did not deny themselves anything."

On November 30, the KBF Air Force made the first raids on the cities of Finland. At 9 am, three bombers appeared over Helsinki and dropped their bombs on the Malmi airfield and the suburb of Tikurilla. An hour later, Captain Rakov's squadron attacked the Finnish base of Santahamina. Finally, eight DB-3s from the 3rd Squadron of the 1st Mine and Torpedo Aviation Regiment under the command of Captain A.M. Tokareva, instead of the port of Helsinki, dropped bombs on a densely populated part of the capital, almost hitting the parliament building. In Helsinki, 91 people were killed and another 236 people were injured. Four bombers were killed: two fell into the water, two crashed on takeoff and landing.

Marshal Mannerheim recalls: "November 30 was a clear and sunny day. Most of the residents who left the capital in autumn returned from their places of temporary residence. During these morning hours the streets were full of children and adults going to school and work. Suddenly, bombs rained down on the city center, sowing death and destruction. Under the cover of thick clouds, Russian planes were able to overcome the distance from Estonia to Helsinki and drop their cargo. The target was probably the port of Sandvik and the main railway station. At the same time, the airfield of Malm, the working areas in the north of the city, were subjected to bombardment and machine-gun fire. Where bombs fell, smoke swirled and fires started.

Early in the morning a message reached me that after artillery preparation the Russians had crossed the border on the Karelian Isthmus in all main directions. Soon after that, reports came in: enemy aircraft were making destructive raids on villages and settlements.

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Tokarev's succeeding squadron repeated the raid on Helsinki, but this time missed. In addition, Kotka, Hanko, Vyborg, and Koivisto were bombed. At the request of the Secretary General of the League of Nations, J. Avenol, regarding what had happened, Minister of Foreign Affairs Molotov stated that there had been no bombing of the city, and planes dropped baskets of bread for the starving

Finnish proletariat. In response to the protest of President Roosevelt, a mocking Molotov demarche followed, published in the Izvestia newspaper: "Soviet aviation has not bombed and is not going to bomb the city, and our government respects the interests of the Finnish people no less than any other government. Of course, from America, located more than 8 thousand kilometers from Finland, this is imperceptible."

Special cynicism also lay in the fact that Soviet planes took off to bombard Finland from airfields located on the territory of "neutral and sovereign" Estonia. At the same time, "Stalin's falcons" repeatedly dropped cargo on Estonian soil. For the sake of truth, no one set the task of destroying specific cities. Somehow it turned out by itself: the navigators were poorly oriented on the map, bombs were dropped from a height of 8000 meters, again the weather.

The conclusions on the actions of the aviation of the Baltic Fleet were as follows:

"The experience of fighting with the White Finns, along with positive results, also revealed significant shortcomings. The most important of them was the poor quality training of a significant part of the flight personnel for flights in clouds and at night, at low altitudes, with a full bomb load. Simplicity in pre-war combat training had an effect, as did the neglect of calculations for hitting targets, which caused low accuracy in bombing, especially against ships and other small-sized targets. Navigator training was also low, and poor knowledge of the theater of operations appeared. As a result, in twenty cases orientation was lost, eight fields

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Tov ended in an accident and disaster. The flight personnel did not have sufficient skills in conducting group air battles, experience in dive bombing and the use of airborne weapons at night. At the beginning of the war, the role of aerial reconnaissance was underestimated, the weak point was the accuracy of image decoding.

If you subtract everything that the "red eagles" really did not know how, what remains? Let's say right away that the Baltic Fleet in total lost 63 combat vehicles, but only 17 of them died from enemy impact.

"Strategic" bombing of settlements and ports, in which the 6th, 21st and 53rd long-range bomber regiments from AON-1 - 155 DB-3 vehicles also took part, continued until mid-January, their victims were 956 inhabitants, 1840 people were injured. At the same time, leaflets were distributed that the civilian population was being killed not just like that, but according to the will of the Finnish people, "outraged by the criminal policy of the mediocre government of Cajander-Erkko-Tanner", and in the vital interests of the people. However, neither the demoralization of the population nor the uprising of the proletarians was achieved. The destruction of industrial facilities and infrastructure was not originally planned, because it was believed that after the capture of Helsinki, "all this will be ours."

It turned out the opposite: all sections of Finnish society consolidated under the slogan of fighting "Bolshevik fascism", and on December 14 the League of Nations expelled the USSR from its membership.

The Soviet command, confident in absolute superiority over the enemy, did not take into account the "microscopic" Finnish Air Force for quite a long time, moreover, armed, for the most part, with obsolete aircraft (36 Fokkers on the Karelian Isthmus against 320 "gulls" and "donkeys"). Bombers flew without fighter cover and already | December "twenty-first" opened the score. First, Lieutenant Vuorilo shot down the first SB over Vyborg, then his comrades "dropped

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to the ground" nine more bombers from the 41st and 24th SBAP. The Finns lost one interceptor, shot down by their own anti-aircraft gunners and, the only Bulldog in the entire war,

which was destroyed by the F.I. Shinkarenko from the 7th Fighter Regiment of the 59th Air Brigade. A trio of Blenheims attacked a convoy of Soviet tanks and trucks in the Tsalka area that day, one bomber did not return to base.

Already on December 3, Marshal Voroshilov felt with his "spinal cord" that the operation was not developing as planned (later he admits: "We did not imagine all the difficulties associated with this war").

In the evening, Meretskov received order No. 0269 with "valuable instructions":

"1. The main drawback of our units, especially in those areas where the enemy has a network of obstacles and ambushes ... is that the artillery breaks away from the infantry, the infantry runs ahead and, having run into serious obstacles, is forced to wait for the artillery to approach .

... The main drawback of the actions of our aviation is that it sets itself a large number of targets at once, is scattered over a multitude of objects and is reluctant to take on specific tasks aimed at serving the infantry directly ... "

On December 9, the Headquarters of the High Command under the "chairmanship" of Voroshilov took over the direct leadership of military operations; Stalin, who did not hold any public office, was listed as one of the members. Meretskov was placed in command of the 7th Army, which was advancing in the main direction, the Karelian Isthmus. Despite daily prodding, the Soviet troops, struggling with the Finnish sabotage detachments, the Karelian nature and the wonderful features of their own organization, advanced extremely slowly in all directions. Aviation, according to the Stavka, worked "not smart enough" and was unable to paralyze the enemy's railway transportation.

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Bad weather with a blizzard did not allow aviation to operate until December 19, but on that day the bombing of Finnish cities resumed,

"Everyone rejoiced at the improvement of the weather," recalled the bomber pilot Captain K. Golubenko, "everyone wanted to celebrate the sixtieth birthday of the great Stalin with a sortie. The wall newspaper and the combat leaflet came out, as always, lovingly designed by Popov. They contained many notes by pilots, radio operators, navigators, technicians and aircraft mechanics with the most cordial wishes to dear comrade Stalin on his sixtieth birthday. In every line one could feel the boundless devotion of our people to the Motherland, to the cause of Lenin-Stalin. On this day, the cars were ready to take off before dawn. It was 25 degrees below zero. Clear skies made everyone happy.

Exu-24 pilots conducted 22 air battles over the Karelian Isthmus that day. Soviet losses were seven SB bombers, one DB-3 and two I-16s. Four days later, the Finns shot down six SBs and four donkeys from the 7th and 68th Fighter Aviation Regiments. On December 21, the 53rd DBAP lost four DB-3s at once. On February 25, Fokkers intercepted six DB-3s from the 6th DBAP - three bombers were shot down, two made an emergency landing. Another DB-3 was lost by the 21st DBAP, which had been inactive until that time, and inactive in every sense of the word: only over the target, when the Ilyushins were attacked by enemy fighters, it turned out that the machine guns were covered with thick factory grease and unable to shoot.

In this regard, the directive of the Headquarters of December 26 indicated:

"In the actions of aviation, attention is drawn to:

1. Fighters do not escort bombers, meanwhile, the presence of ice on the lakes now makes it possible to bring fighters closer to the front line and escort bombers.

2. Bombers on the days of decisive offensives do not deliver a massive blow on a short front under

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cover of our fighters, but 3-6-9 bombers fly without fighters.

3. Bombers stay over the target for a long time, making several passes without using anti-aircraft maneuver in case of enemy anti-aircraft fire.

4. During the month, the exit and entrance gates do not change, and enemy fighters easily intercept our planes."

Well, who needed the experience of Spain and Khalkhin Gol? For whom were kilometers of reports written? When I.I. Proskurov (a pilot, a participant in the war in Spain, in the summer of 1937 he was a senior lieutenant, from April 1939 - deputy people's commissar of defense, head of the Intelligence Directorate of the Red Army) was asked why the troops lack information about the organization, weapons and tactics foreign armies, the divisional commander explained that our intelligence had collected a whole basement of "valuable materials" and, in order to dismantle it, "a whole brigade of 15 people should work for a couple of years." One gets the impression that in previous years, reports and reports were immediately sent to the basement without being read.

Everything is as usual: how many of those Finns, we will shower with felt boots! Just on this day, three DB-3s of the 21st TBAP were blown by some wind to Gruzino station, on which they famously and without loss bombed. Thank God, not one of the 30 bombs hit the target (Voroshilov's reservation about the Air Force of the 14th Army dug in in the Petsamo area is interesting: "This army gave the Stavka the least concern, except for the flights of its aircraft to Sweden and Norway." Here I wonder if they bombed anything along the way?

On December 27, Finnish fighters shot down three SBs from the 18th SBAP.

By the end of the month, the combat score of Lentolavio-24 reached 54 victories in the air, including 46 SB and DB-3 were destroyed. Irrecoverable losses of the 2nd Air Regiment - two Fokkers, one Bulldog. At the same time, the biplanes of the 1st Regiment, as best they could, supported the counterattacks of their ground troops, storming the positions of the Soviet artillery; at the same time, six Fok

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ker"SH. Bombers of the 4th regiment attacked convoys and concentrations of troops, port facilities and ships of the Baltic Fleet, carried out long-range reconnaissance and lost three vehicles and one crew. Naval squadrons carried out patrol flights over the Gulf of Finland and the Gulf of Bothnia, as well as the Sea of Åland, trying to prevent the actions of Soviet submarines; own losses amounted to four aircraft, and one of them was shot down by anti-aircraft fire from the Soviet submarine S-1.

Soviet pilots and anti-aircraft gunners shot down 13 enemy planes in December.

On the land front, the most advancing of all, the "brave and invincible Red Army" choked on blood and switched to positional defense not provided for by the charters.

High losses of Soviet bombers, low activity of fighters, a large number of accidents and catastrophes during this period were caused, first of all, by the primitive training of pilots and the absence of airfields in the theater. Why mess around if they were going to deal with the "Finnish booger" in 15 days; as a result, the fighters simply lacked range. At the same time, in Finland, "military airfields built by the beginning of 1939 with the help of German specialists were able to receive 10 times more aircraft than the Finnish Air Force had," which, by the way, is still presented as an obvious sign

aggressive aspirations of the "Finnish militarists". Not to mention the notorious "Mannerheim Line", which was assigned the role of "a stronghold for the subsequent development of offensive military operations" and the invasion of the territory of the USSR, This Chukhon horror is also being tried to put into our heads in the 20th] century by employees of the Russian General Staff .

At a meeting of command staff dedicated to the Winter War, commander P.V. Rychagov, who commanded the aviation of the 9th Army, reported:

"We had a maximum of 25-30 aircraft in the Ukhta direction. Reasons for this. Firstly,
on this on

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There was only one airfield, 150 meters wide and 800 meters long. We landed up to 40 aircraft of various purposes at this airfield, together with aircraft of the Civil Air Fleet. Everyone could not fly from there at once. If they all took off at once, it would take an enormous amount of time to land. Moreover, one more fact that slowed down this work, except for this airfield at a distance of 200 km, it was impossible to land a single aircraft anywhere. This means that if an aircraft with a shot through chassis arrives on this runway, it will be forced to land, as we say in aviation, on the "belly". If he sits on this belly, the rest of the ships that are in the air will not find a place for themselves to land and they will be defeated outside the airfield ...

Around the forests and mountains, terribly bad terrain. Moreover, the preparation of this theater of operations to the Arctic Circle from Petrozavodsk, approximately 400 kilometers, was not sufficiently carried out, there was not a single airfield. There was one airfield Poduzhemye and that one was unsuitable ...

Under such conditions, in a peaceful situation, we did not fly, in order to preserve our own skin and in general to avoid accidents and accidents. Well, here, when we had a war, then we were required to fly at any time, fly in any weather, in any wind and from very bad airfields, i.e. 800 m for SB with a load of 800-900 kg. It is impossible to offer to fly from such an airfield in peacetime, not a single commander will agree ...

We also had such cases when, during a flight either to Uleaborg, or to one of the big points, 30-50 aircraft flew, and 10 aircraft returned to the airfield. The rest landed on all the lakes, since it was not possible to reach the airfield, chose the first place that came across, sat down and demanded help. Such cases were frequent, especially in December-January...

The rear, consisting of "weak" bases that were hastily put together, was clearly not provided with army transport. The army was organized on the move, trans

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there was no port, no communication, no command staff. All these difficulties gave us frequent interruptions in the supply of bombs and fuel. The cartridges, however, were enough, enough.

A new stage of the air war began immediately after the new year. On January 3, the air units of the four Soviet armies received an order for the next ten days by systematic and powerful bombing attacks on administrative and military-industrial points, ports and bridges, to disorganize the work of the enemy's rear. Vice Admiral V.F. Tributs clarified the tasks of naval aviation: "The ports are absolutely destroyed to the ground, because they are the most important centers that feed the enemy army. Destroy Abo. go to Raumo, etc."

On the morning of January 6, 17 DB-3 bombers from the 6th DBAP took off in two waves from an airfield located in Estonia. The target of the raid was the city of Kuopio. The first group of nine Ilyushins reached the target as planned, but the second wave of eight bombers under the command of Major Maistrenko, while crossing the Gulf of Finland, was intercepted by Lieutenant Sovelius' Fokker O.XX, which shot down one of the bombers.

Having dumped the load on the target, now the "seven", turned on the return course, which was a straight line between points "A" and "B". At noon, Lieutenant Sarvan's fighter attacked them and shot down six Soviet bombers in four minutes: "Some of them caught fire after bursts of my machine guns like pages from a book on fire. The red January sun illuminated the smoking planes. The last DB-3, which the Finnish guy did not have enough ammunition to finish off, managed to reach the airfield, but was not subject to restoration.

While units of the 7th and 13th armies on the Karelian Isthmus were preparing for a decisive offensive, the Finnish ski detachments, taking advantage of the lull in the main direction, cut off communications, blocked, crushed and alternately crushed north of Lake Ladoga

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divisions of the 9th Army V.I. Chuikov and the 8th Army G.M. Stern - 163rd, 44th, 54th, 168th, 18th...

On January 7, the Soviet troops operating on the Karelian Isthmus were united into the North-Western Front, where 26 rifle divisions were concentrated. In the second decade of January there was a lull: the front commander, commander of the 1st rank S.K. Timoshenko thoughtfully prepared to break through the "Mannerheim Line", accumulating forces, establishing logistic support, and establishing elementary military order. Landing sites for fighter planes were set up on frozen lakes.

The fights in the air continued. On the afternoon of January 17, TEN Fokkers intercepted three groups of SB bombers (25 aircraft in total) from the 54th SBAP. Soviet planes were returning home after completing the mission. The battle broke out over the Karelian Isthmus, as a result, nine SBs were shot down, and several more vehicles were damaged. The enemy had no losses. Two days later, as a result of fighter attacks, two more SB crews were killed.

Seconded to the headquarters of the North-Western Front, commander P.S. Shelukhin wrote to the Commissar of Defense:

"The state of combat training of air units is at an extremely low level ... bombers cannot fly and especially do not maneuver in formation. In this regard, it is not possible to create fire interaction and repel an attack by enemy fighters with massed fire. This makes it possible for the enemy to inflict sensitive blows with his insignificant forces.

Navigation training is very poor, resulting in a lot of wandering even in good weather; in poor visibility and at night - mass wanderings. The pilot, being unprepared for the route, and due to the fact that the responsibility for aircraft navigation lies with the pilot-observer, carelessly in flight and loses orientation, hoping for a flight. Massive foreclosures have a very detrimental effect on the combat capability of the units, tk. they lead to a large number of losses without any impact from the enemy and undermine the confidence in their forces among the crews, and this, in turn, makes the commanders not

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to wait for good weather, which sharply reduces the number of flights ...

Speaking about the actions of aviation in general, it is necessary to speak most of all about its inaction or action, mostly in vain. For there is no other way to explain the fact that our aviation, with such a colossal superiority, could do almost nothing to the enemy for a month.

The helplessness of the Air Force of the 8th Army, commanded by I.I. Kopets, emphasized in the Stavka directive of January 18:

"The Headquarters is completely incomprehensible to the inactivity of our bomber and attack aviation in assisting the 56th corps. Despite the weak Finnish aviation, the entire aviation of the army

is engaged only in dropping products and covering the dropping aircraft, leaving parts of the 56th Corps without assistance and allowing the enemy reserves to approach unhindered ...>

Three more days later:

"During the entire time of the battles of the 16th and 165th divisions with the enemy, who went to the flank and rear of these divisions, the Headquarters did not see any concentrated combat operations of the 5th army aviation to assist the troops of the 56th division .hulls...

Recently, objects of bombardment behind enemy lines, given as targets for aviation of the 8th Army, have not been exposed at all, and unhindered delivery of reinforcements and food by the enemy was allowed.

The Headquarters considers that the aviation of the 5th Army is used shamefully, worse than in other armies, poorly led and does not give in the work what it is obliged to give with its overwhelming superiority over the enemy air forces.

But the neighbor on the right had nothing to boast of, there, too, in general, "nothing was exposed" behind enemy lines. The Air Force of the 9th Army initially had 39 aircraft, including 15 fighters. During the fighting, the Army Air Forces were transferred: the 10th high-speed bomber air brigade (16th, 41st and 80th SBAP), the 3rd transport aviation regiment,

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Spirin's special air group, the 145th and 152nd fighter regiments and the 33rd separate reconnaissance squadron. Rychagov shared his experience at the meeting:

"In our army, the use of aviation, approximately until the retreat of the 44th division, if you can call it that, proceeded more or less normally. We were engaged in both the immediate and deep rear of the enemy and were engaged in work along the front. After the 44th division withdrew, the 54th division went, which was surrounded.

It was not difficult to surround it: they cut off the road in one place; she could not go off-road and remained surrounded. Plus, it was later divided into several more garrisons, and thus turned into a kind of layer cake. Each garrison panicked in its own way. From that moment on, the work of aviation switched to helping the garrisons of the forward 337th regiment, the command post of the 54th division, and the divisional exchange office. The main focus of the army was directed there. The 80th regiment and two attached squadrons worked there. They were bombarding around this division, Te. they did not give the enemy the opportunity to shoot at the division, protecting it from all adversity ... Gusevsky was the commander. Every day, and sometimes several times a day, he sent panicky telegrams, even to the point that he wrote: "We see each other for the last time," "Goodbye," and all sorts of other panic information. This is absolutely unworthy behavior for the commander of a Red Army rifle division. Under the influence of these telegrams, almost all the reserves of the 9th Army, which were there and suitable, were ruined, many people were thrown there, and they could not organize any offensive to liberate them. The division was fed by the 80th aviation regiment for 45 days, and this regiment actually saved it, an inactive division, from starvation and death, giving the Finns no peace day and night. Every day, at the slightest activity of the Finns, panic arose there, all gradually arriving squadrons and battles were sent there.

they are skiers...

This is what this panicked behavior of Gusevsky led to, who was surrounded by a division. Thanks to

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imprisonment in the environment where he was sitting, where aviation was obliged to bomb, shoot, protect him for 45 days. Gusevsky realized that he lives thanks to aviation, and reports: two

guns, send bombers. Applications for aviation were sent from there almost daily with such requests that it was simply inconvenient that a brigade commander of the Red Army was writing this...

Gusevsky asked to bomb even individual guns. The enemy, after firing from them, moved them from place to place, he had few of them, took care of them like a child, dragged them to another place and opened fire again from this place, try the bombers to keep up with them. The enemy's gun is firing, which means that they believe that aviation is working poorly. [the enemy, did not know.

A sector of acres of 20-30 is allocated, they say, let's thresh, they thresh an empty forest, cones remain from this forest, all the trees will be cut down. There is no benefit from such bombing. Those objects that should be bombed by aviation, they remained in a calm state. When the panic stopped, we were able to bomb other targets...

They acted along the railroads, as they did on the North-Western Front, they tried to shoot at locomotives with cannons, there were several successful hits ...

Bombardment of stages does nothing, it's too hard to hit. They tried to bombard stations, but after that the stations quickly recovered and began to work, so important stations should be kept under attack all the time.

Flights along separate houses, valleys, paths of the enemy almost did not give any results, they found small groups, they could not influence the enemy with such a flight. It was difficult to catch the enemy in the forest. Our ground situation shows that the fact that our troops are not masked at all could serve as an orientation for the flight crew. Denisov told me that there was a case on the isthmus, when one of the division commanders told him that with such powerful aviation as

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what we have, we will not disguise ourselves, because we do not need it, we will be protected anyway; or such a case when one division abandoned its anti-aircraft artillery near Leningrad and crawled out to the front as if on a holiday; or another example, when one enemy aircraft appears above our location, then panic rises, especially in the rear. They believe that not a single plane can fly to us. But try to notice a single plane at an altitude of 5-6 thousand meters ...

Our infantry is now accustomed to such a situation that enemy aircraft should not bomb it. They would have fought with an enemy who has a lot of aircraft and then anti-aircraft artillery, which is busy like upholstered furniture, they would hardly have left, but would have brought it faster than winter uniforms. Few of us were hit from the air, which is why we do not know the price of aviation.

It can be concluded that in the 9th Army aviation was mainly engaged in "feeding" the ground troops (only for the 54th Rifle Division, the 10th high-speed bomber tons of ammunition), bombing houses and paths, and occasionally shooting at steam locomotives.

The Finnish pilots were so insolent that they provoked an angry order from Timoshenko, signed by him on January 24:

"Recently there have been unbearable cases when single enemy planes manage to fly over our troops and even bombard their dispositions and airfields.

The military units and aviation of the front, saturated with machine-gun and artillery anti-aircraft weapons and fighter aircraft, still cannot shoot down enemy planes trying to fly over the front line and once and for all discourage any desire for their appearance over our troops.

Semyon Konstantinovich slightly exaggerated, after all, 10 enemy planes were shot down in January: four Blenheims, four Fokker CX and two of some Swedes.

The period of stabilization of the front line ended on February 1 with the start of attacks by the troops of the North-Western Front on

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Karelian Isthmus, designed to "probe" the enemy's defense. The Soviet command concentrated large masses of troops on a narrow sector. The number of Soviet aviation was increased to 3253 aircraft - almost as much Hitler spared for Barbarossa. The bombers switched from strikes against strategic targets to providing tactical support to their ground forces. According to the commander of the 2nd rank V.D. Grendal, this was done on the personal instructions of the Brilliant Strategist, who tirelessly taught his commanders military affairs: "For a long time aviation did not receive the right direction, and only after Comrade. Stalin said that it was enough for aviation to be engaged in the rear, the work of aviation was restructured. Tov. Stalin said - let aviation work with military units. Aviation was reorganized, and in accordance with this, the bulk of aviation was transferred to the command of the army. Large groups of fighters were allocated to escort and patrol over the attacking troops.

In the war with Finland, they could not do without TB-3. As on Khalkhin-[ol], they worked mainly at night, hitting large volumes behind enemy lines, and before breaking through the Mannerheim Line, they switched to bombing its fortifications: no other Soviet aircraft could lift a 2000-kg bomb. But for the most part, the FAB-250 and FAB-500 were used.

The number of combat-ready fighters in the Finnish Air Force, despite the losses, increased and was at the level of 45-67 aircraft. Shortly after the start of the war, the British government decided to transfer to the Finns 30 Gloucester Gladiator Mk.P biplane fighters (four machine guns, 410 km/h); the first of them arrived on January 18, 1940 and, like the next, became part of the YX-26, replacing the outdated "bulldogs", which were transferred to "coaching work" and no longer participated in the battles. In early February, 30 Moran-Saulnier M\$.406C cannon fighters began to arrive from France through Sweden, with which the newly formed air group x-28 was armed. In the middle

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month, the Italian Fiat S.50 "Freshia" appeared, replenishing the ranks of the Shu-26 (already on January 29, they shot down two DB-3s from the 53rd DBAP). In addition, the British delivered 24 Bristol Blenheim Mk.G[U] bombers. Eleven combat vehicles of various types were handed over by Sweden in bulk, and in Lapland, in the Kemi region, 16 aircraft of the Aviaflotilla of Swedish volunteers fought (at the end of the campaign, the Swedes announced twelve victories, they themselves lost six vehicles, in battle - two).

On February 2, the Gladiators opened a combat score by shooting down one Seagull and two I-16s; on February 3, the 42nd DBAP lost four DB-3s in a fight with the Fokkers, and productions without cover - two. On February 13, six "gladiators" intercepted nine bombers from the 39th SBAP north of Ladoga, flying accompanied by "gulls". In a short battle, the Finns shot down seven SBs. Soviet fighters in the first decade "filled up" three "Fokker"-HCC.

The general offensive of the troops of the North-Western Front began on February 11 with a three-hour artillery and aviation preparation. Long-range aviation again delivered strikes against targets behind enemy lines, with some raids involving from 65 to 120 bombers. On the first day, the attackers succeeded in penetrating the Finnish defenses [1.5 km; by the end of February 14, a gap was made 4 km along the front and 8-10 km in depth. With no reserves to plug the breach, General Mannerheim gave the order to retreat to the second defensive line. By February 25, the advance of the Red Army had stopped - the command took a two-day

pause to regroup for an attack on Viipuri (Vyborg). On this day, three "gladiators" from Shh-26 attacked nine R-5s, which escorted six I-153s from the 13th separate fighter aviation squadron. The Finns shot down four planes, in turn, two Gladiators were shot down, and the third, due to the damage received, had to make an emergency landing. On February 26, Fiat troikas intercepted a group of Soviet aircraft south of Kuovalaa and shot down one I-16 and one

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DB-3, the next day, Soviet fighters burned one Fiat.

The Finnish side suffered heavy losses on February 29, when Soviet fighter aircraft launched a surprise attack on the airfields where I x-24 and Ikh-26 were based. Pilots from the 49th and 68th Fighter Regiments destroyed six "gladiators" and one "twenty-first" on takeoff and in the air, losing two "donkeys". During this battle, the only air ram in the entire war was made. Squadron commander senior lieutenant Ya.F. Mikhin in a frontal attack with the wing of his plane hit the keel of Lieutenant Tatu Gukananti's Fokker, cutting it down. The Finnish pilot died, and the Soviet one returned to base.

Only on March 3, Meretskov's army reached Vyborg, but all attempts by the Soviet troops to take the city were unsuccessful. Then, on March 4, seven rifle divisions made an "ice campaign" through the Vyborg Bay, bypassing the enemy's fortified positions and in two places clung to the coast. In order to prevent the advance of the "Red Russians" deep into the territory of Finland, all the "White Finnish" aviation was thrown into battle, which attacked the columns of troops and equipment moving along the ice of the bay to the bridgeheads. Stubborn resistance on land, along with air support, allowed the Finns to stop the Soviet advance. In air battles over the bay, both sides lost five aircraft each.

In the meantime, it became known in Moscow that Great Britain and France were preparing to land an expeditionary force in Norway, with the subsequent help of Finland. The allies were only waiting for the official appeal of the Finns for help and the consent of the Swedes and Norwegians to let the troops through. At the same time, according to Soviet intelligence, they were developing a plan for aerial bombardment of the Baku oil fields from the territory of Iran and Syria. They also talked about the landing of the allies in Arkhangelsk. Thus, a clash between the Soviet Union and the Entente was brewing. From the point of view of Stalin, in the face of such a threat, the Winter War had to be ended, and the "liberation" of Fin

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postpone the land until better times. The "people's government" of the Kremlin freeloader comrade Otto Kuusinen, "wholly approved and supported the actions of the Red Army", went to the dustbin of history, it became necessary to renew contacts with the legitimate government of the Republic of Finland. On the other hand, the Finns had long been trying to establish a dialogue with Moscow through third countries, and in early March Mannerheim reported that the army was on the verge of defeat.

On March 6, the Soviet leadership, through the Swedish embassy, announced its readiness to start peace negotiations with Finland, which began in the Kremlin two days later.

The last victims of the Winter War in the air were the DB-3, shot down on February 11 by a Fiat, and the Fiat, damaged in an air battle on the same day and crashed during an emergency landing.

According to Finnish data, the Lentlavo-24 interceptors scored only 119 victories, losing 12 Fokkers. The 2nd Fighter Regiment made 3486 sorties and shot down 170 enemy planes. Regiment losses - 29 vehicles and 15 pilots. In total, the Finnish Air Force carried out 5693 sorties and shot down 207 aircraft, another 314 aircraft shot down anti-aircraft guns; total - 521 aircraft. Own losses - 76 aircraft shot down and 51 seriously damaged. For a full account, you can

add about 15 military vehicles that crashed "on their own" due to bad weather conditions or stopping the engine.

304 pilots were killed, 90 disappeared without a trace. Among them were Swedes, Italians, Danes, Hungarians. Thanks to supplies from the West, 166 combat vehicles remained in the units of the first line, including 128 serviceable ones.

Soviet aviation, according to official data, completed 10,0970 sorties. At the same time, the Red Army Air Force and the Red Banner Baltic Fleet destroyed 362 "White Finnish aircraft". Own losses amounted to 26] the car being shot down or making forced landings behind the front line, another 86 are missing and 227 are under the column

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"died and damaged in accidents and catastrophes." In total - 574 vehicles, including about a hundred DB-3 bombers and two heavy bombers TB-3. There are other figures: "For the entire time of the Soviet-Finnish war, the USSR lost 627 aircraft of various types. Of these, 37.6% were shot down in combat or landed on enemy territory, 13.7% went missing, 28.87% were lost as a result of accidents and catastrophes, and 19.78% received damage that did not allow return aircraft to service.

As for the personnel, the General Staff of Russia, to this day, is not in the know: "It was not possible to find complete information separately about the losses of Air Force units during the Soviet-Finnish war." Excluding the Baltic Fleet, the losses of the Air Force amounted to 785 people killed and missing, of which 68% were flight personnel.

It is very possible that the Finns overestimated their results, but they can claim at least 347 destroyed Soviet aircraft. The postscripts of the Soviet side are beyond doubt. According to the award list, signed by the head of the Air Force of the 7th Army, Commander Denisov, two squadrons of the 7th IAP from the 59th Fighter Brigade "shot down 69 vehicles, including 12 bombers"; on one day only, December 23, 10 Fokkers were "filled up". And Nikolai Toropchin, the commander of the 25th IAP of the same brigade, did not blunder: "Almost every time we returned to the airfield with a victory... On the Karelian Isthmus we shot down 52 enemy planes, but we ourselves did not not one has been lost." For example, on February 2, the regiment shot down one Fokker-O.HHG with a Danish pilot over the Imatra station, and they recorded two eleven! So after all, the 38th and 68th regiments also didn't catch flies, but beat the enemies at every meeting

packs.

For the skillful command of the brigade, Colonel E.K. Erlykin was awarded the title of Hero of the Soviet Union: "Under severe meteorological conditions, brigade commander Yerlykin's aviators made 10,812 sorties that winter, shot down in the air [0] and destroyed 30 enemy aircraft on the ground without losing not a single one of his."

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Despite the fact that everyone who was supposed to know that 32 fighters in the brigade were irretrievably retired, including 21 were shot down in battle - in fact, one regiment was destroyed.

The final losses of the "White Finns", apparently, were knocked out, based on the Reports of Soviet intelligence, which counted about 500 aircraft.

Although the Finnish pilots proved to be worthy opponents, they could not and did not have a serious influence on the outcome of the hostilities of the Finnish Air Force. However, according to Mannerheim, Russian aircraft did not become a decisive factor either:

"Before the war, the skill of Russian pilots was highly valued. We were prepared for the overwhelming advantage of the Russians in the air and expected crushing attacks on troops, factories, cities,

communication network. However, this did not happen. As is often the case, when a person prepares for the worst, the result is that his fears are exaggerated.

It turned out that Russian aviation did not have an aircraft that could be called modern. In any case, the aircraft that took part in the Winter War were for the most part of the type used by the Soviet Union during the Spanish Civil War. In recent years, the aviation industry has not kept pace with the development of progress in this area, since political purges have deprived scientific institutes and aircraft factories, as well as aviation itself, of the best personnel ...

The Russians were completely unable to carry out the strategic task of cutting off our communications with foreign countries and provoking chaos on our communications. Water transport was concentrated in Turku and was not damaged, despite the fact that the city was bombed sixteen times. Our only railroad connection with foreign countries, the Kemi-Tornio line, which served both for the import of military equipment and for most of our exports, remained unscathed until the end of the WAR.

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Without a doubt, the result of the air war did not correspond to the efforts expended on it.

On March 12, 1940, the Moscow Peace Treaty, predatory for the Finns, was concluded. Stalin received everything he officially demanded, and even more. However, the Finns defended their independence, retained the armed forces and did not allow the red flags to be hoisted over the presidential palace, as Soviet leaflets wrote, "to the general rejoicing of the working people and the intimidation of the enemies of the people." Instead of a neutral neighbor, the Soviet Union has a staunch enemy on its northwestern border, eager for revenge.

Formally, the USSR won the war, but this victory turned out to be so inglorious that they tried to forget about it. Hitler, who previously did not appreciate the combat effectiveness of the Red Army, from now on did not put it in the penny, which had an important influence on his subsequent decisions.

In the course of this war, the previously outlined tendency to disperse aviation over military armies intensified. It was then that for the first time in practice the Air Forces of the armies and the Air Force of the front were formed with the allocation to them, respectively, of 49% and 36% of the available forces, another 15% was allocated to ensure the air defense of Leningrad. In fact, the control of aviation units in the course of hostilities was often carried out by the commanders of rifle corps through the system of "applications". In general, it was concluded that such an organization justified itself. On April 19, 1940, the Main Military Council noted: "The necessity of the division of the Air Force into army aviation, specially designed for interaction with ground forces, and operational, acting in the interests of the operation and war, has been proved with complete certainty."

In mid-April, a meeting of the commanding staff of the Red Army under the Central Committee of the All-Union Communist Party of Bolsheviks was held, dedicated to "gathering combat experience. action against Finland. Speakers pointed to certain shortcomings in the training of troops, big claims were made against intelligence and logistics. But the general refrain sounded hymns led

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awesome and reliable Soviet technology, wonderful Soviet ammunition, heroic Soviet people: "Each commander and Red Army soldier was warmed by the great love of our Soviet people. Each Red Army soldier went into battle, keeping on his lips the great name of Comrade Stalin, which was a great banner of victory, inspired heroism, was a great example of how to love and fight for our homeland... We shoot better than shooting the Germans fought in the old war. Now let's see how they will shoot in the west (laughter). The shells we have are excellent, very good shells... Aviation personnel - flight personnel and navigational personnel, technical staff in the war showed themselves well. For example, there was not a single case in the shelves

engine failure due to technical fault, although they worked in severe frosts and at night. There was no material failure. There was not a single case that the pilots did not complete the task or the assigned task ... We put the Finns on their knees, and they were defeated because we threw out a sufficient number of bombs, shells, did not give them a single minute to rest.

In his closing speech, Stalin told the audience that the Red Army not only defeated the Finns, but, moreover, defeated Germany, France, and England taken together:

"General conclusion. What did our victory come down to, whom did we defeat, in fact? Here we fought for 3 months and 12 days, then the Finns knelt down, we yielded, the war was over. The question is, who did we defeat? [00- they say the Finns. Well, of course, the Finns won. But this is not the most important thing in this war. To defeat the Finns is not God knows what task. Of course, we had to defeat the Finns. We defeated not only the Finns, we also defeated their European teachers — we defeated the German defensive technique, we defeated the English defensive technique, we defeated the French defensive technique. Not only the Finns were defeated, but also the equipment of the advanced states of Europe. Not only the equipment of the advanced states of Europe, we defeated their tactics, their strategy...

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We defeated not only the Finns - this task is not so big. The main thing in our victory is that we defeated the technique, tactics and strategy of the advanced states of Europe, whose representatives were teachers of the Finns. This is the main victory."

Hurrah, comrades!

Thunderous applause, everyone stands up, shouts of "Hurrah.

Exclamations: "Hurrah comrade. Stalin!

The participants in the meeting give a stormy ovation in honor of Comrade Stalin.

Nevertheless, on the eve of the clash with the Entente, Stalin once again shook up the top army leadership. First of all, K.E. Voroshilov, after him they "pushed" the Chief of the General Staff B.M. Shaposhnikov, commanders who "did not justify their trust" moved to secondary positions — Kovalev, Yakovlev, Chuikov, Stern, Dukhanov, Khabarov, Loktionov, Proskurov.

New People's Commissar S.K. Timoshenko wrote about the state of the Air Force:

"The organization of the Air Force, due to the significant growth of aviation, is outdated and needs to be reviewed and merged into larger air formations (divisions).

The existing organization of air bases does not provide maintenance of advanced operational airfields and their maintenance in working condition throughout the year.

The flight crew is insufficiently trained in bombing, in flights in difficult meteorological conditions and in shooting.

Aviation schools graduate weak pilots, trained mainly on the old materiel, and as a result, young pilots have to be retrained in units.

The issues of service by the flight crew have not been worked out, as a result of which, since 1938, there has been an incorrect situation when the Red Army

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active military service after a year of training in schools for junior specialists are issued in the category of middle commanding staff. Despite the large shortage of navigators, their training is not organized.

The accident rate and catastrophes in aviation continue to remain high due to the poor training of the flight personnel, their ignorance of the material part, low discipline, disorganization of flight work and the irresponsibility of unit and brigade commanders for the accidents and catastrophes that have occurred.

In the USSR, more and more units of the air force were being formed. On February 1, 1940, there were 48 aviation brigade directorates, 149 air regiments, 49 separate squadrons, over 12.5 thousand combat aircraft; by the beginning of May - 58 air brigades, 188 air regiments, 38 separate squadrons. On April 29, by order of the head of the Air Force Directorate No.-063, the special-purpose aviation armies were disbanded, the formations included in them were poured into the air forces of the districts at the place of permanent deployment. At the same time, the transition to a divisional structure was being prepared.

An interesting coincidence, however, there is no coincidence here: it was in April 1940 that tests of the I-200 high-altitude fighter and the VI-100 long-range escort fighter began.

England and France continued to prepare for an air strike in the Caucasus. Their reconnaissance aircraft began to take aerial photographs of the Baku and Batumi regions.

The Soviet side, in turn, strengthened the grouping of troops on the southern borders. From March 25 to March 29, an operational game on cards was held with the highest and senior command staff of the Transcaucasian Military District, during which the "Reds", having repelled an enemy invasion attempt, beat the "Blacks" and "Greens" on territories of Turkey and Iran. In early April, troops from the Finnish front, as well as air formations, began to arrive in Transcaucasia. Until April, the ZakVO Air Force consisted of the 60th air brigade, the 5th long-range reconnaissance squadron, the 6th reconnaissance squadron and the squadron

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air defense. In April-May, the 3rd, 17th, and 64th air brigades were transferred to the district. and 9 air regiments. In addition, the 45th air brigade and three air regiments were formed "on the spot". K. | June, the military air force of the district increased from 246 to 1023 aircraft. The long-range bomber regiments of the Transcaucasian and Odessa districts received an order "to start studying the Middle East theater of operations, paying special attention to the following objects: Alexandria, Beirut, Haifa, Istanbul, the Suez Canal, Port Said, Gallipoli, Ankara, the Bosphorus and Dardanelles , work out possible routes, bomb load.

In April, the "strange war" in the West entered a "hot phase". First, the Wehrmacht occupied Denmark without a fight, then carried out an incredibly cheeky landing operation in Norway. On May 10, German troops invaded France. As soon as it became clear to the Soviet leadership that the French were suffering a crushing defeat, in June 1940 Stalin finally resolved the "Baltic question" by joining Estonia, Latvia and Lithuania to the "happy family of Soviet peoples." England at this point had enough of its own problems, and she did not mind. Hitler, forewarned in advance, also agreed and issued a circular warning the German diplomats that "in view of our unfailingly friendly relations with the Soviet Union, we have no reason to worry."

In parallel, there was a massive transfer of troops to the Kiev Special and Odessa military districts, which on June 9 were reorganized into the Southern Front under the command of General of the Army G.K. Zhukov. The Kremlin decided that the time had come to "restore historical justice" and demand from Romania the "voluntary" transfer of Bessarabia and Bukovina. For greater credibility, a grouping of 460,000 soldiers and commanders, 12,000 guns and mortars, and about 3,000 tanks was deployed near the border. Air Force

front united 21 fighter, 4 heavy bomber, 4 long-range bomber, 12 medium bomber, 4 light bomber regiments, in which there were 2160 aircraft.

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There were also three airborne brigades ready, on orders, to "jump" behind enemy lines and disorganize them. The Romanian Air Force consisted of 200 morally and physically obsolete aircraft. It is very likely that Soviet planning was not limited to operations only in Bessarabia, there were also interests in Romania itself, Bulgaria, Iran and Turkey. In a conversation with the Italian Ambassador V.M. Molotov put the question directly: if Italy is ready to recognize the hegemony of the USSR in the Black Sea, then the Soviet government is ready to recognize the hegemony of Italy in the Mediterranean.

On the advice of Berlin, Bucharest decided to "voluntarily" satisfy Moscow's territorial claims, and by the end of July, the troops of the Southern Front, without meeting resistance, reached the new border of the USSR. The further movement of the Red Army to the south was stopped by the firm position of Germany, which declared its disinterest in the Bessarabian issue, but at the same time emphasized the inadmissibility of turning Romania into a theater of military operations and recommending "Soviet friends" not to cross the Prut and lower Danube rivers, "so as not to jeopardize our interests in the oil-producing regions."

The Soviet General Staff intensified the development of war plans "with the most probable adversary", which Germany was named for the first time, given the high probability of involving Romania, Finland and Hungary in a future conflict - it is clear on whose side, and assessing the overall potential "fascist" Air Force in 14-15 thousand aircraft.

On July 22, Hitler gave instructions for the development of operations against the Soviet Union.

On July 8, the head of the Red Army Air Force, commander of the 2nd rank, Ya.V. Smushkevich submitted a report to the People's Commissar of Defense, in which he proposed the creation of 34 aviation divisions as part of 144 air regiments and the preservation of 34 separate regiments. The next day, the People's Commissar of Defense was presented

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mobilization request, according to which in 1941 the aviation industry was to produce 15,813 fighters, 17,522 bombers and 2,370 training aircraft.

On July 25, a resolution of the Council of People's Commissars "On the reorganization of the aviation forces of the Red Army" was adopted. From now on, aviation should have air divisions (4-5 regiments each) and separate air brigades (2-3 regiments each). Three types of air divisions were created:

- mixed, "having as their purpose the direct interaction and support of mechanized, cavalry and combined arms formations":

- long-range bombing, "designed to destroy military installations and disorganize the rear of the enemy;

- fighter, "having as their purpose the struggle for air supremacy and the cover of political and economic centers."

K | January 1941, the Air Force should have had 50 air divisions, 239 air regiments, 62 corps squadrons - 15,672 aircraft in the state. In addition, the controls of four separate air brigades were retained.

On November 5, 1940, by decision of the Politburo and the Council of People's Commissars, a program was approved to "strengthen", more precisely, to double the air force. Instead of aviation armies, it was decided to create long-range bomber aviation, for which purpose - to allocate air regiments armed with aircraft

TB-3, DB-3, TB-7 in a three-regiment long-range air division. It was supposed to form five DBA air corps, each of which was to include two bomber and one fighter divisions, three separate DD divisions and one separate air regiment. Lieutenant General I.I. was appointed assistant to the head of the Air Force Main Directorate for DBA. Pro-skurov. During 1941, it was planned to create directorates for another 104 air regiments of regiments, including 22 regiments of long-range twin-engine fighters, 25 air divisions, and to increase the total number of aircraft to 32,000, of which 22,171 were combat aircraft.

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In the same year, new charters for fighter and bomber aviation were approved. Regarding the DBA, it was written: "Long-range bomber aviation has the main purpose of undermining the military and economic power of the enemy by actions in his deep rear, destroying the linear forces of the navy, stopping and disrupting large-scale rail, sea and road transportation. Long-range bomber aviation operates outside tactical and operational communications with ground forces, in the interests of waging war as a whole. The main task of the other types of the Air Force was "the fight to destroy enemy aircraft both in the air and on the ground and to ensure the main combat missions performed by ground forces in close cooperation with them."

After the unsuccessful November negotiations in Berlin, Stalin finally decided that "we will fight against Germany, while England and the USA will be our allies." Hitler reread the Barbarossa plan for the last time.

In December 1940, a meeting of the senior command and political staff of the Red Army was held in Moscow.

At the meeting, the closest attention was paid to the discussion of the issues of carrying out crushing operations that ensure the defeat of the enemy in a short time. In Soviet theoretical writings, before the theorists were shot down, there was a beautiful term: "Operations of the big style." In the report of the Commander of the Kyiv Special Military District, General of the Army G.K. Zhukov "The nature of a modern offensive operation" outlined the main features of modern offensive operations of the front and the army, methods of using large tank and mechanized formations in cooperation with the Air Force, including when operating in the rear of the enemy's operational grouping and when turning operational success into strategic success. Speaker

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showed the increased scope, depth and pace of the offensive, the need to use airborne assault forces to capture key objects and lines in the operational depth of the enemy's defense. Among the most important features of the operation, he attributed the continuity of the offensive operation of the front and the gaining of air supremacy:

"Supremacy in the air is the basis of the success of operations. This dominance is achieved by a bold and sudden powerful strike by all Air Forces against enemy aircraft in their base areas. Only with air supremacy of the Front Air Force will they be able to fulfill the tasks of direct combat assistance to shock armies ...

It will be a special concern of the commander of the army and the commander of the army air force not to let their aircraft be destroyed on the airfields. The best means for this will be a sudden strike by our aviation on enemy airfields and a dispersed position of our aviation with camouflage of materiel and air defense on airfields...

Air strikes must be deployed in such a space as to suppress the bulk of enemy aircraft in the airfield-based areas, inflict defeat on it, disrupt the supply of railways and dirt roads, and paralyze the entire system of rapid

advance into the operational depth, must destroy the operational actions (of the enemy forces) in the rear and exclude the possibility of their operational maneuvering.

When breaking through enemy defenses: "During this period, army and front-line aviation concentrates the center of gravity of its combat work on direct support and cover for troops."

Lieutenant-General P.V. Rychagov, who covered a number of issues, in particular, gaining air supremacy, the interaction of aviation with ground forces, delivering strikes against the operational rear of the enemy, and others:

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"The gaining of air supremacy is a necessary condition for ensuring the planned and successful development of the ground offensive operation of the front, and therefore the involvement of army and front-line aviation in it is mandatory ...

Gaining air supremacy in a front-line operation is achieved by:

1) the destruction of enemy aviation at airfields with a simultaneous strike on its rear (front-line bases, repair agencies, fuel depots, ammunition depots);

2) destruction of enemy aircraft in the air and over the battlefield;

3) the presence of superiority in forces.

The first task is the most difficult to carry out, since in order to accomplish it it is necessary to catch enemy aircraft at its airfields, and this, given the current basing depth and the ability of aviation to maneuver along airfields, is a great difficulty. Most of these raids will fail.

The best way to defeat aviation on the ground is to simultaneously strike at a large number of airfields where enemy aircraft can be based...

Having won air supremacy, continue to hold it, taking the main emphasis on work in the direct interests of the operation.

In the debate about air supremacy, they talked a lot and with pleasure. We argued a little about how best to conquer it: by sudden attacks on enemy airfields or in air battles. There were no objections to the postulate that aviation should assist the ground forces in every possible way and solve operational tasks in cooperation with them. We agreed that there should be both front-line and army aviation, both of which should be plentiful, and that the flight personnel should be armed with the most modern technology and excellently trained. The German principle of air force centralization, which made it possible to concentrate large aviation forces in one direction, was considered interesting, but it was noted

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as well as the "inertness" of such an organization: "It must be taken into account that such a system has very serious disadvantages. With a weak air enemy, such as France, Poland and England (the last in 1939), the Germans could centralize the Air Force. But if the war is waged between two equal opponents, then such a rigid centralization will not lead to good. The information that in the Wehrmacht any company commander could request air support by radio was treated with skepticism - a publicity stunt.

Marshal S.K. summed up the long-term disputes about the use of aviation. Tymoshenko: "The decisive effect of aviation lies not in raids in the far rear, but in joint actions with the troops

on the battlefield, in the area of a division, army.

Then, with the generals, who were admitted to the most important secrets, they played operational strategic games, during which options for invading Europe were worked out on the maps.

As insignificant, the main thing was left out of the brackets: the Red Air Fleet is not capable of fighting for air supremacy with a serious adversary. This was talked about as individual shortcomings that would be planned to be eliminated by the time "when Comrade Stalin sends us into battle":

aviation is prepared for simple types of combat, especially a large lag in flights under difficult meteorological conditions and at high altitude. Fire training, aviation training for flights at high altitude and at night is low;

operational and tactical training is in disrepair;

the leadership of the Air Force does not have a unanimity of views on the use of aviation in operations;

the most difficult thing is the actions of the air force with the cavalry-mechanized army. We haven't actually worked it out. This is a purely theoretical question;

if the military councils do not deal with the creation of a rear for the Air Force, this most important question will not be resolved;

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in order to work smoothly, good means of communication are needed in time, which aviation must have at its disposal. The available means of communication today do not provide reliable communication with the ground command and do not provide control in combat. Your means of communication is required aviation.

What is the general conclusion? Here it is: "We have found the source of military thought, from which it will rapidly spill over into all the pores of our military organism. We began to truly carry out the instructions of Comrade Stalin on raising the military-ideological level of our command cadres and laid the foundation for the creation of our own military ideology."

1940 ended. The Red Army finally had a military ideology. What if there is a war tomorrow?

As of January 1, 1941, the Air Force had 26,392 aircraft, including 14,628 combat aircraft and 11,438 training aircraft. Moreover, 10,565 vehicles (8392 combat vehicles) were built in 1940. In February, the General Staff presented a new mobilization plan, according to which it was planned to have in the Air Force: air corps directorates - 5, aviation division directorates - 79, separate air brigade directorates - 5, long-range bomber regiments (DB-3) - 36, heavy bomber regiments (TB-3) - 6, bomber regiments - 102, twin-engine fighter regiments - 22, fighter regiments - 149, light assault regiments - 15, mixed regiments - 3, separate reconnaissance regiments - 10, separate reconnaissance squadrons - 42, individual communications squadrons - 39, corps squadrons - 76, observation balloon squadrons - 24. Almost immediately, the formation of the "missing" 106 air regiments and five airborne corps began. In total, after mobilization, the Air Force was supposed to have 343 air regiments with a total number of 32,628 aircraft, of which 22,171 combat aircraft (including 11,920 bombers, 11,957 fighters) and 10,457 training and auxiliary aircraft.

The fact is that the Soviet generals came to the conclusion that it was necessary to transfer approximately

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guilt of front-line aviation in the composition of combined arms armies. For tactical interaction with the troops of each army, which was to operate in the main direction, it was planned to allocate 2-3 air divisions of mixed composition, operating in secondary directions - one air division each. The remaining forces were left at the disposal of the front command and were used to solve operational tasks in the interests of the front. To solve more global problems, there was the Aviation of the High Command.

In principle, the idea is sound, like any ideal construction. But for its implementation, not only a lot, but a lot of aviation formations and aircraft were required. According to pre-war views, it was planned to have from 15 to 30 front-line and army aviation divisions at the front, which amounted to from 2,700 to 9,000 aircraft. The Soviet Union was the only country that managed to successfully solve this problem. Another thing is that the issue of the effective use of large aviation formations remained a "thing in itself", and in the initial period of the war, when thousands of combat vehicles were lost, the air forces were increasingly dispersed among the armies. So, at the beginning of 1942, the share of army aviation on the Western and Kalinin fronts was 83%, which excluded the centralized control of aviation and its massive use on a frontal scale.

Getting ready for the Great Campaign, Stalin did not forget about such an important matter as strengthening discipline, and arranged a little bloodletting for the military to maintain their tone. Aviation, as you know, he was especially fond of. The reason for the repressions was the innocent complaint of "one of the designers" that the Air Force Research Institute "slows down the testing" of a good Mig fighter and misleads the Central Committee of the All-Union Communist Party of Bolsheviks.

In April-June 1941, Chekists arrested the deputy head of the Main Directorate of the Air Force, divisional engineer I.F. Sacrier, head of the 8th department

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military engineer 1st rank P.K. Nikonov, head of the experimental department of the Armament Directorate of the Air Force, military engineer of the 1st rank G.F. Mikhno, head of the 4th department of the Research Institute of the Air Force brigade commander A.I. Zalevsky, head of the research and testing ground for aviation weapons, Colonel G.M. Shevchenko, head of the department of the same training ground, inventor of the Onisko buckets, military engineer 1st rank S.G. Onisko, head of the experimental department, military engineer 1st rank V.Ya. Tsilov, Head of the Air Force Research Institute and Deputy Head of the Main Directorate of the Air Force, Major General A.I. Owl.

Then came the turn of figures of a larger caliber.

From the very beginning, the NKVD was convinced that the engineers were trying to disrupt the rearmament program not on their own initiative, but on the instructions of high-ranking foreign intelligence agents. In the operational information of the NKVD officers, the causes of car accidents were presciently linked to the counter-revolutionary activities of a powerful, clandestine anti-Soviet organization. The proletarian instinct did not let down the "organs of Comrade Beria." The last proof that overflowed the bowl of Stalin's patience was the unexpected landing on May 15 at the Central Aerodrome of Moscow of the German Junkers-52, which flew into the capital from Bialystok, spitting on the "special regime" of the Soviet sky and freely bypassing all air defense posts. Everything fell into place - in the depths of the Air Force, another "right-wing Trotskyist conspiracy" ripened like a purulent abscess.

In the last days of May, the arrests of the top leaders of the Air Force, the heroes of Spain, Khalkhin Gol, and the war with Finland began, which continued until mid-July. In total, about 30 military aviators or commanders known in the country who were directly related to aviation were taken - the best shots at that time. Most, under the weight of indisputable evidence in the form of rubber truncheons, confessed to "crimes", the essence of which was participation "in a military conspiratorial organization, on whose instructions they

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carried out enemy work aimed at reducing the combat training of the Red Army Air Force and increasing the accident rate.

Assistant Commander of the Air Force of the Orel District, Major General of Aviation E.G. Schacht, a Swiss by origin, "transferred espionage information about Soviet aircraft construction to the Germans."

The former commander of the Air Force of the Moscow Military District, Lieutenant General of Aviation P.I. Pumpur, for five months of his command, completely deprived the district of combat capability.

Assistant Inspector General of the Red Army Air Force for Military Educational Institutions Divisional Commander N.N. Vasilchenko - "carried out sabotage".

Deputy Chief of Staff of the Red Army Air Force Major General of Aviation P.P. Yusupov.

Former Assistant Chief of the General Staff for the Air Force, Lieutenant General of Aviation Ya.V. Smushkevich.

Deputy Commander of the Air Force of the Leningrad Military District, Aviation Major General A.A. For a long time Levin headed the Directorate of Military Educational Establishments of the Air Force, worked with "enemies of the people", knew all their ins and outs and "did not expose them". And all because he himself was "a pest and a German spy."

Head of advanced training courses for Air Force commanders, brigade commander I.I. Black.

Commander of the air division of the Leningrad military district brigade commander A.I. Orlovsky.

Commander of the Air Force of the Far Eastern Front, Lieutenant General of Aviation K.M. Gusev - traditionally worked for the mikado.

Assistant Commander of the Air Force of the Volga Military District, Aviation Lieutenant General P.A. Alekseev. This one "carried out sabotage in the armament of the Air Force, accepted defective and incomplete aircraft from the industry, delayed the re-equipment of air units with a new materiel."

Head of the Personnel Department [Main Directorate of the Air Force, Major General of Aviation V.P. Belov. He was smuggling

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to leadership positions of "unverified and politically dubious people".

The former head of the Main Directorate of the Air Force of the Red Army, Lieutenant General of Aviation P.V. Levers.

Chief of Staff of the Red Army Air Force, Major General of Aviation P.S. Volodin.

Head of the Air Force Academy Lieutenant General of Aviation F.K. Arzhenukhin.

Former head of the Intelligence Directorate of the Red Army, head of the Air Force of the 7th Army of the Northern Front, Lieutenant General of Aviation I.I. Proskurov.

Commander of the Air Force of the Western Front, Major General A.I. Tayursky is "a spy for German and French intelligence".

Commander of the 9th Air Division of the Western Front, Major General of Aviation S.A. Chernykh.

Former head of the Main Directorate of Air Defense of the Red Army, commander of the Air Force of the Southwestern Front, Lieutenant General of Aviation E.S. Ptukhin "carried out subversive work. aimed at

weakened the combat readiness of the Red Army, recruited new participants in the conspiracy, spied and committed other "counter-revolutionary crimes".

Chief of Staff of the Air Force of the Southwestern Front, Major General of Aviation N.A. Laskin.

Commander of the Air Force of the North-Western Front, Major General of Aviation A.P. Ionov "carried out sabotage in airfield construction."

It is felt that the investigators were too lazy to even fantasize, all the accusations are "home-made" of the 1937 model. It is not even clear who was at the head of the "conspiracy", and for the sake of what "barrel of jam" he was villainous. Doesn't matter. The theoretical substantiation of Stalin's paranoia was laid out on paper by the ever-memorable Nicolo Machiavelli: "Since all people love according to their orders, and fear according to the orders of the Prince, the wise Prince must rely on what depends on him, and not on others."

Almost all the defendants, including Rychagov's wife (she was "beloved wife"), were destroyed

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without trial by lists. Only A.I. was spared. Zalevsky and A.I. Orlovsky: they were "given a term", but they did not last long in the camps, only one year.

In the first half of May 1941, when a large-scale transfer of Soviet troops from the interior of the country to the West began in the deepest secrecy, Marshal S.K. Timoshenko ordered the commanders of the border districts to develop a "detailed plan for the defense of the state border" in case the enemy tried to interfere with the mobilization, concentration and deployment of the Red Army. The general task of the aviation of the "cover armies", according to the guidelines, was to "take active actions to gain air supremacy and powerful strikes against the main railway junctions, bridges, stages and groupings of troops to disrupt and delay the concentration and deployment enemy troops."

At the headquarters of the Leningrad District, of course, they outlined targets on the territory of Finland.

The Air Force of the Baltic Special District planned strikes against the "established bases" of the enemy, the railway junctions of Koenigsberg, Marienburg, Eylau, Allenstein, Insterburg and bridges across the Vistula.

The headquarters of the Western Special District was going to powerfully and systematically bomb Königsberg, Marienburg Thorn, Kalisz, Lodz, Warsaw, bridges and airfields in enemy territory. The "Note" noted: "Fighter aircraft cannot escort the bombers in the performance of this task, their radius of action does not allow it."

Bombers from the Kyiv Special District targeted targets in Silesia and southern Poland—Czestochowa, Katowice, Krakow, Kielce, and Breslau. Oppeln, Craiburg.

Aviation of the Odessa Special District, together with the 4th long-range bomber air corps and the Air Force of the Black Sea Fleet, were supposed to cover the mobilization

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bombardments of Bucharest, Constanta, Brailov, Ploiesti, Botoshan, oil depots and oil refineries.

On June 21, 1941, the Soviet air force was the largest in the world. They included 79 aviation divisions, 5 aviation brigades, 348 air regiments. The number of personnel reached 440 thousand people, which accounted for 70% of the state. Most of

aircraft was located in the border districts, on the basis of which front-line departments had already been formed.

There was very little left: to complete the strategic deployment, wait for some kind of provocation by the "Hitler fascists" on the German-Soviet border, and give the "Thunderstorm" signal.

At dawn on June 22, 637 German bombers, escorted by [23] fighters, launched a surprise attack on the 31st Soviet forward airfield. Then another 35 airfields located at greater depths were attacked by 400 bombers.

"At the beginning of the war, the peoples of our country were amazed, like a thunderbolt from a clear sky, when they heard on the radio a message about the insidious attack of fascist Germany on the Soviet Union. Our people have always been aimed at waging war on foreign territory, and we were inspired that "in every propeller the calmness of our borders breathes". But the unfortunate inhabitants of the western front line, alas, found out about the beginning of the war, when bombs suddenly rained down on them."

By evening, on the ground and in the air, Soviet aviation had lost 1,136 combat aircraft. The North-Western Front lost 98 vehicles, the Western Front - 738, the South-Western - 277, the Southern - 23.

Okay, they screwed up, who doesn't happen to them, but, in fact, no catastrophe happened, the Soviet Air Force still outnumbered the enemy many times over. Even in the most affected air forces of the Western Front, more than 1000 combat aircraft remained in service, including 500 fighters, and in the rear of the front, on Smolensk

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airfields, the 3rd long-range bomber air corps, which was operationally subordinate to General Pavlov, was based. Of course, there are not enough forces for the march to East Prussia, but it is quite possible to fight. The fact that the enemy destroyed most of the aircraft on the ground was even a plus - in the sense that the crews survived. In addition, according to reports, the enemy also had losses.

The catastrophe happened a little later, when there was no surprise anymore, and Soviet losses amounted to 230 aircraft per day, when the entire air regiments began to disappear, when, IN THE course of the "maneuver inland", hundreds of combat vehicles were left abandoned at the airfields. So, the Western Front entered the war with 1043 fighters, and a week later there were 124 of them.

For 18 days, about 4,000 Soviet and about 450 German aircraft irretrievably perished in border battles. By mid-July, the strength of the Air Force of the North-Western Front was reduced to 102, the Western Front to 346, and the South-Western Front to 337 serviceable aircraft. On July 31, at the headquarters of the Air Force of the Red Army, 5240 aircraft were entered in the column "unaccounted for loss", at the headquarters of the Luftwaffe, the recorded loss on the Eastern Front was 670 aircraft. By the end of 1941 the Soviet air force had lost almost 18,000 combat aircraft, of which 10,300 were destroyed by the enemy.

The fight for air supremacy was lost.

CHAPTER 4

So...

This means that the quantity, as Tupolev expected, did not work out. It would be more accurate to say "quantity" was not enough.

General M.M. Gromov thought about this problem after the war:

"Aviation is a type of weapon in which quality, not quantity, plays a particularly important role. This applies both to technology and to the training of people. Aviation is strong in its mobility, the ability to quickly change targeting and methods of destruction ...

Mass character was considered important for us, as opposed to quality. And this was an indicator of the weakness of our aviation culture."

But even before the war, it was clear that modern aviation technology should be operated by competent people, that a pilot should be able to fly, fly well, fly not just like that, but inflict damage on the enemy, that is, hone not only flying, but also tactical skills. , never cease to learn, to accumulate experience. That superior commanders must use aviation correctly, taking into account many factors, "keep control over the actions of their subordinates, direct the course of the battle according to their will, and not as the enemy wishes."

The innocently murdered brigade commander Lapchinsky wrote:

"Superiority in the air does not consist in flying a lot, but in flying with more sense than summer

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There is no enemy, and this "importance" is determined by the extent to which the air forces provide an opportunity for their troops and prevent the enemy troops from using the results of combat work in the air and from the air.

In the 1920s, Weimar Germany had no military aviation. However, the leadership of the country and the army even then took a number of measures, which subsequently contributed to the rapid revival of the air force. In order to retain the most valuable personnel, General Seeckt created special departments at the headquarters, in which - with very limited officer vacancies - there was a place for 180 pilots of the First World War, listed as consultants "with special duties." Their task was, for example, to convince the commander of an infantry unit during maneuvers to take into account the possible actions of aviation, friendly or enemy, when planning combat operations and making decisions.

In 1924, at the direct suggestion of the Reichswehr, ten sports aviation schools were opened in the country, under the roof of which former military aviators were retrained and new ones were trained. The passion for gliding among German youth has become truly massive. Another reserve was the pilots and ground crews of the Lufthansa airline.

Real training on real combat vehicles became possible in 1925 with the opening of a secret air base in the Soviet Union. Over the next eight years, 120 German pilots and 100 observer pilots completed courses in Lipetsk. In addition, on the basis of the Lipetsk experience, the same number of specialists were trained in Germany itself. Many Germans took part in the maneuvers of the Red Army. When, in April 1933, Hermann Göring took over the newly created Imperial Aviation Ministry, he did not have to start from scratch:

"He had at his disposal selected pilots who were undergoing military flight training in Russia

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and were ready for any mobilization. 15,000 glider pilots and 1,000 airmen belonged to 300 private, paramilitary flying clubs, which Goering united into the huge "German sports aviation league". The country had about 100 good airfields, many meteorological stations and a network of radio stations. In addition to this, Germany had Lufthansa, one of the best and largest airlines in the world. Lufthansa flew more kilometers and carried more passengers than the French,

English and Italian airlines combined, and its pilots and many aircraft could easily and quickly be used for military purposes.

By the time Hitler openly announced the existence of his own air force in the spring of 1935, they had 1,888 combat vehicles and 20,000 personnel.

In August 1939, there were 373,000 people in the air force, taking into account the paratroopers, anti-aircraft artillery and communications battalions. Including 20 thousand flight composition.

The initial combat training of conscripts was carried out in 23 aviation training regiments and 2 naval aviation battalions. Every year 60,000 people were trained here. For their further education, there were 21 pilot schools, 10 schools for the combat use of aviation, and 2 aviation technical schools. The officer corps was replenished mainly at the expense of oberfanen junkers, who graduated from special aviation educational institutions. Officers were trained at four Air Force schools and two academies: air force and military technical.

Special attention was paid to the training of pilots. The Luftwaffe had 8,000 advanced pilots who had the right to day and night pilots of any military aircraft. By the beginning of World War II, about 25% of all pilots had mastered the skill of blind piloting.

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In 1941, a fighter pilot, leaving the flight school, had more than 400 hours of total flight time, of which at least 80 hours were in a combat vehicle. After that, the graduate got into the reserve air group, where he added another 200 hours.

At the Nuremberg trials, Field Marshal Albert Kesselring testified: "Everything was done to make the German Air Force, in terms of its personnel, combat qualities of aircraft, anti-aircraft artillery, air communications service, etc. the most formidable navy in the world."

We admit that the Germans succeeded. Including because, for the most part, the crews of German aircraft surpassed the enemy in individual skill, group flying and combat tactics.

Meanwhile, in the Red Army, the process of training specialists was steadily sliding towards simplification, for which there were always "good" reasons: the fight against accidents, the need to save fuel, save materiel, personnel shortages in the growing by leaps and bounds, air forces. In order to give the pilots more flying practice, there was not enough fuel, airfields, training aircraft. As a result, as the Commander of the Air Force of the Moscow District, brigade commander I.T. Eremenko: "The vast majority of the flight personnel arriving at the military units do not meet the requirements in terms of flight."

In June 1939, Voroshilov, in order No. 070, demanded that an independent flight on a combat aircraft at Air Force schools be increased to 30 hours. And at the same time - to exclude high-altitude training and aerial shooting from flight programs. If something is broken or canceled, then we execute it instantly. It is more difficult to raise, increase, improve. Still unknown to anyone A.I. Pokryshkin, having graduated from the Kachinsky school in 1939, flew ten and a half hours on the I-16; graduates of the same school in 1940 - from 8 to 10 hours.

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In March 1940, Air Force schools were transferred to accelerated training with the following terms of study: pilot schools - 12 months, schools for pilots and aircraft technicians - 12

months, the school of aircraft mechanics - 8 months, the school of gunners-radio operators - 5 months. And in order to reduce the accident rate, they stopped teaching aerobatics.

At the April meeting on the results of the war with Finland, commander P.V. Rychagov raised the issue of the inability of the "Stalin's falcons" to fly in adverse weather conditions, in particular, and the poor training of a significant part of the flight crew in general, and indicated the main, in his opinion, reason:

"This situation seemed difficult because in peaceful conditions we dealt with these things very cowardly, indecisively, because we have a number of provisions when we report for each accident and catastrophe in three or four institutions in different directions. The military council of the district very rarely asks us about the readiness of our aviation. Usually, by phone or in a personal conversation, they ask: "Did something happen?" If something happened, let's dig to the root. Sometimes this root is that a person, mastering the heights of aviation equipment, put the machine out of action, but when investigating the accident, they try to find reasons why the commander would look either undisciplined or suspicious. In any case, after this accident, the pilot is not allowed to fly, and only after six months or a year is he again allowed to fly ...

In conclusion, I would like to say that our aviation has gained rich experience in flying in difficult meteorological conditions. It is necessary now by direct special order of the chief of the Air Force, the people's commissar, to force this experiment to be continued and demand flights, without fear of any events, accidents, catastrophes, because our commanders are not particularly trained in large flights ...

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If we have a catastrophe, then in the analysis of this catastrophe, the commander, who must analyze this catastrophe, takes the last place. This catastrophe is being handled by a large number of organizations that are showing a lot of hype. The commander is not visible behind these organizations ...

I must say that we have made a huge loss in the air force due to the fact that we are afraid of catastrophe, accident and all sorts of events. We were only concerned with the pilot, so that he would not break something, so that he would not do something superfluous, and we missed the letnabs. We are bombing very badly now. True, the comrades who watched the bombing of the Germans say that the Germans are not distinguished by a high class either, but ours, it must be admitted, are lower. So this year, first of all, it is necessary to press on the letnabs, which are abandoned, the course taken for the pilot must be left in fighter aviation, and in bomber aviation, the course must be taken for the letnab, take the course for the crew ...

We now have literally hundreds of dangling pilots in aviation who cannot be allowed to fly for various reasons and who are difficult to demobilize, since there are many barriers to this; these loafers willy-nilly hang out in our fleet for many years, they do not find a place for themselves.

As one of the measures to increase the combat readiness of the Air Force, Rychagov suggested issuing a law prohibiting a commander who graduated from flight school from marrying for two or three years, and devoting this time to improving his skills: "I will give such an excuse for this. Our pilot is formed during the first two or three years. If a pilot arrives - tears look at him - a lieutenant is 23 years old, he has 6 people in his family, will he master a high class? He won't master it, because his heart and soul will be at home. We need to make such a law."

Thus, pilots who not only did not learn complex aerobatics, but did not even really master the "takeoff and landing", to whom the commanders were simply afraid to entrust the aircraft, poured into the combat units en masse.

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On August 28, based on the results of an inspection of 28 air regiments in seven military districts, People's Commissar Timoshenko issued order No. 0200, which "established" the main reasons for the "high accident rate":

"1. Extremely low discipline, laxity and disorganization in the units of the Red Army Air Force. As a result of weak control, orders, charters and instructions for flight operations that regulate flight work are not strictly and consistently followed...

A large number of drunkenness with brawls, unauthorized absences and other immoral offenses incompatible with the title of commander, Red Army soldier, characterize the low state of discipline and give rise to accidents.

2. The organization of combat training in many regiments is unsatisfactory.

The planning of combat training is carried out "out of time and space", which is a consequence of ignorance of the preparedness of the squadrons and leads to the setting of overwhelming and unrealistic tasks.

Squadrons have not yet learned how to approach the pilot individually — to set tasks in accordance with his training, as a result of which accidents and catastrophes occur.

The commanders of the Air Forces of the districts did not understand the need for consistent training of units ...

3. Navigator training in most units, and especially in fighter units, is at a low level.

Knowledge of the basics of navigation is weak. There is an excessively large number of loss of orientation, including among the leading command staff.

4. As a mass phenomenon - poor knowledge of the material part of the flight and technical staff. The pilots and part of the commanders have little knowledge of the data of their aircraft and engine.

The pilots, not knowing the material part, are afraid to control the work of the technical staff.

The commanders of units and subunits, not knowing the material part of the aircraft and the engine themselves, do not demand and do not check the knowledge of the personnel subordinate to them...

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Technical training is poorly developed, and in a number of regiments it is not available throughout the summer, which leads to a poor condition of the materiel, to a flight without fuel, with clamps not removed, ignorance of how to emergency lower the landing gear and how to switch the fuel tank valves .

5. A large number of breakdowns, accidents and disasters occur during takeoffs and landings of aircraft. This suggests that important elements of piloting technique, takeoff and landing (!) have not been worked out by young pilots.

6. Checking the piloting technique is poorly organized, is carried out irregularly and not within the time limits specified in NPP-35 No. 69.

A review of flight books showed that the errors noted during the verification of piloting techniques are not eliminated, but only fixed, i.e. the most outrageous disgrace deliberately occurs when a pilot with known and uncorrected errors continues to fly on a more difficult mission , does not cope with it, repeats mistakes, hits the plane and dies himself.

7. In Air Force units, the positions of commanders of regiments, squadrons and units are occupied by commanders who do not have sufficient experience in leading units and subunits.

Squad commanders do not have instructor and methodological experience, they do not know how to show and teach his subordinate.

The commanders of the air forces of the districts, the commanders of divisions and regiments did not understand the need to especially teach and educate personnel, but left them to themselves. This leads to the fact that the flight and squadron commander does not know how to build work, makes mistakes that cause accidents.

In the command part, as usual, it was required to eliminate the shortcomings as soon as possible. Of course, they eliminated and reported. In the window dressing and eyewash of the Red Ar-. mission was unmatched.

September 3, summing up the command and staff exercises of the 1st Rifle, 6th Mechanized Corps and two aviation divisions, during which it was found that

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different types of troops are waging a "war" independently of each other, marshal S.K. Timoshenko said:

"We still have a lot of lies. There are times when a lot comes up, but in fact, if you go deeper into the essence of the matter, then there is a lot wrong with what you were told about. I think that this kind of nonsense still lives with us, but its root is not in the people themselves, we have good people, but in our system. It is for the restructuring of this system that we must now undertake, to cultivate in ourselves an intolerant attitude towards any, even the slightest shortcoming.

The people's commissar himself was tightly soldered into the system, and therefore, summing up the results of combat and political training, he first of all stated that the summer period of 1940 "was a turning point in the education and training of the army on a new basis, proven by the experience of combat requirements" - the same kind of nonsense.

In the autumn of 1940, the Soviet Air Force had 37,558 pilots and 81,563 aviation specialists. Since in a year it was planned to have over 32,000 aircraft and 60,000 flight crews in service, another 22,400 pilots and 63,400 aviation technicians had to be trained for their operation. To do this, it was proposed to increase the staff of existing schools by 7680 people and form 33 new schools. At the same time, it was necessary to expand the network of operational airfields, the number of which did not ensure the normal operation of aviation, and to form new aviation technical companies. The implementation of all these measures required an increase in the staffing of the Air Force to 54,2746 people.

On November 5, the Politburo adopted a resolution "On staffing schools and schools for pilots of the Red Army Air Force", according to which, "to ensure the staffing of schools and colleges", Osoaviakhim had to additionally train 20,000 pilots trained for U-2, and the Civil Air Fleet - 10 thousand pilots | October 1941. At the same time, "in order not to ruin the industry by diverting labor from it," the contingent for training had to be recruited, the main

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Thus, from among schoolchildren in grades 9-10, employees and collective farm youth.

On December 7, the Main Military Council discussed the draft "Regulations on the service of the flight technical staff of the Red Army Air Force", which concluded that aviation was "heavily loaded with command personnel" and proposed to transfer the entire middle commanding staff, who held positions below the squadron commander, to the position of junior command staff. On December 11, the council approved a proposal to change the terms of service in the Air Force and the recruitment system for military schools. Now, instead of voluntary enrollment in flight schools, they received the right to recruit cadets from the next call for active military service.

On December 22, 1940, the People's Commissar of Defense issued an order according to which a new term of service in the Air Force was established - four years. Pilots, navigators and aircraft technicians who did not serve this term, who held a position below the squadron commander, regardless of rank, with | February 1941 they were transferred to the barracks. Their families should have been "sent back to their homeland" or resettled somewhere else. In any case, they have nothing to do in the air towns, and what will they

to do behind the fence, the marshal did not care. Graduates of aviation schools instead of an officer's rank received triangles of sergeants in their buttonholes.

These events, on the one hand, made it possible to save a lot of "people's money", on the other hand, they were called upon to "improve aviation" in the sense that pilots, unencumbered by family worries, would be able to give all the heat of their hearts to their beloved combat vehicle, everything devote one's time to combat training, recklessly, wholly and completely devote oneself to military affairs, for this is required by the "interests of the country's defense." This is where, it turns out, the root of all problems was buried: "The family, located near the pilot, constantly reminds of itself. Such a split of the pilot's attention and energy, the inability to concentrate entirely on the task of combat training, reduces the level of combat training of the pilot, makes him unprepared

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nym. The poor preparedness of the flight crew inevitably leads to accidents and catastrophes, and in a combat situation it will lead to the fact that a poorly trained pilot will be shot down by the enemy."

General P.V. Rychagov was delighted: "Order of the People's Commissar of Defense No. 0362, approved by the government, is the beginning of an organized Air Fleet. The old organization of the Air Fleet has outlived itself. Now we need a massive Air Fleet, well organized and mobile. We did not have this in the old organization of the Air Force. Order No. 0362 puts things in order, allows you to raise discipline among the ordinary flight personnel. The role of a commander is being raised, and a young man, a pilot, who must learn to fly and fight, will not be burdened with a family from the very beginning of his service.

I want to give you one example. In Zaporozhye the air garrison has a small number of heavy ships, but it has a colossal number of children; on average, there are 12.5 children per aircraft. Until now, this has led to the fact that the young pilot and technician, burdened by the family, have lost all maneuverability in the event of a movement of the unit. In addition, a pilot connected with a large family loses combat effectiveness, courage and wears out physically prematurely.

The order of the People's Commissar of Defense eliminates the existing shortcomings in this regard, creates normal conditions for the operation and growth of the air fleet, which, with a common understanding of its use, will bring many victories.

In general, all "big bosses" liked the idea. Major General A.A. Novikov, commander of the Air Force of the Leningrad District: "Your order 0362 brings a historical turn in the life of the Air Fleet, it puts an end to the source that gave rise to weak discipline and lack of organization in aviation. With the transition to the barracks position of the bulk of the flight technical staff, it will be possible to improve not only the condition of the soldiers

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discipline, but also to a large extent to raise the quality of combat training and the combat readiness of air units.

Assistant Chief of the General Staff for the Air Force Lieutenant General Ya.V. Smushkevich bluntly called the presence of a combatant pilot's family "the only and main reason" for the low level of combat training of the air force: "I think that the bulk of the flight crew will understand that without transferring the conscript flight crew to the barracks position, the combat air fleet cannot be combat-ready. Without the fact that the flight personnel will be completed in the same way as the entire Red Army is completed - not on a voluntary basis, but on a mandatory basis, we will not have good pilots.

And you can't call them stupid. Rather, there was a real misunderstanding in which country the generals live, a desire to redistribute responsibility, an inability, I would say,

impossibility to establish combat training in the CONDITIONS of "our system". Well, and the usual hypocrisy of people who made a career.

At the December meeting, General Ya.V. Smushkevich reported on a serious reduction in 1940 of the programs "for night training, for high-altitude training and for flights in the clouds, that is, for the most difficult types of combat training": "I want to say and on night training, with which we are bad. For example: the entire Leningrad district flew 14] hours on bomber aircraft, i.e., that 3 pilots should fly a year. The Oryol district flew only 36 hours, and there is the 51st regiment there, which flew to Belarus in the spring of 1940. This old regiment did not fly a single hour at night. The Transcaucasian Military District is a little better, but even there night training is reduced to almost nothing. The entire district flew only 331 hours at night for bombing. We are working poorly on radio navigation. Even on a business trip, our bombers at night, as a rule, fornicate. At night, without radio navigation, it is impossible to conduct large flights. Those radio stations that are available, the radio compass, are not being studied in parts. Bomber crews solve the tasks of bombing

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or 2-5 times a year. The fighters learned to shoot at a cone at a speed of 200-250 km/h, "because the cones come off at high speeds."

It would be better to shove everyone into the barracks and start "completing complex tasks", finally study the semi-radio compass. True, for example, in the Leningrad Military District there were 35 young pilots for one training "donkey" UTI-4 - no more than ten could fly on it during the day, if the weather did not interfere and there was gasoline: "As a rule, every year we in the midst of flights in the summer, starting from July, and sometimes from June, the supply of gasoline stops, parts go on starvation rations, curtailing flights because of this in the best months for flights (June, July, August) . This situation is no longer tolerated. You can't fly without fuel. The normal supply of gasoline begins again from October, when, in fact, flights begin to curtail due to weather conditions, and airfields get wet.

In the new academic year, the People's Commissar of Defense set the task for the Air Force to learn to fly higher, faster and farther, day and night, in any weather conditions, to work out the interaction between troops and naval forces, to learn fighter aviation in conducting group air combat on large heights and improve in dive bombing and shooting at ground targets, reconnaissance to teach photography at night, bomber - to strike from behind the clouds, assault - to storm with a fury.

Literally ten days later, Rychagov's instructions were to limit aerobatics on I-16 and I-153 fighters with M-62 and M-63 engines - there were about 9000 units - to limit by 80%.

"The I-16 aircraft of a number of series, as well as the Seagulls, were equipped with high-power motors and variable-pitch propellers," recalls General V.F. Golubev. - The maximum rotation speed of the propeller in flight is up to 2500 rpm and even more. and were considered acceptable

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2300 rpm. It was also not allowed to fly at RPMs below 2100 according to the instructions, which surprised the technically competent pilots and technicians of the regiment.

The reason for these restrictions were several accidents that occurred due to the stop of the engines. And while the designers were working on eliminating flaws in the work of the materiel, the pilots had the right to fly only if the roll was not more than 45 degrees, the speed did not exceed 400 kilometers per hour, and the dive angle was not more than 35 degrees. Aerobatics and air combat were categorically forbidden. It was possible to do only combat turns in single and group flights.

The winter of 1940/1941 turned out to be snowy, however, like all other winters. However, it was precisely this winter that it was decided to END WITH "Asiaticism": instead of "changing shoes" for planes from wheels to skis, it was ordered to clean airfields, as in Europe. There was a lot of snow, there was no airfield equipment. As a result, in the winter period of training, the average flight time per pilot in the Air Force was 16 hours, specifically in the Kiev Military District - 6 hours, and in the Oryol Military District - 2 hours and 12 minutes. Blind flight accounted for 5.2% of the total flight time, night flight - 4.6%. Training in dive bombing was not carried out at all.

Conclusions on the acceptance of comrade Sbytov and the surrender of comrade Pumpur of the Air Force of the Moscow Military District:

"During the winter period of 1941, combat training and combat readiness in the Air Force units of the Moscow Military District were in an unsatisfactory state. The development of a new material part was carried out extremely slowly. In fact, the training of pilots in bombing, aerial shooting, air combat, cross-country flights, high-altitude, blind and night flights was actually disrupted.

flights.

In the presence of 1197 pilots in the district, only 346 bombings were carried out. At the same time, only 191 bombings, or 55 percent, were carried out with positive results. to the number of flights. 723 firing at cones and shields were carried out, and 3657 firings were completed [with a positive result, or 50 percent. Only 76 air battles were conducted in the district.

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At night, 103 pilots flew with a flight time of 206 hours; they did not work out combat use at all at night. Altitude training in the district is disrupted. During the entire winter period, high-altitude flight over the entire district amounted to 45 hours and 27 minutes, and not a single pilot flew above 7000 meters. Moreover, only some commanders, and not ordinary pilots, flew to a height.

As of May 1, 1941, there were 248 pilots who do not fly combat aircraft, or 23 percent.

There were no retraining plans for the 24th Air Division, flights were not organized intensively, the 27th Fighter Regiment does not fly MiG-3 aircraft, although since April 1, 1941 it has

planes...

Simultaneously with the poor results of combat training, the accident rate increased sharply in the district. During the disasters, 29 people were killed and 18 people were injured; there are 31 accidents, 103 breakdowns and forced landings.

The situation is especially difficult in the 23rd Air Division. The personal report of the division commander, Comrade Andreev, and as a result of a special check of the division, it was established that all four regiments of the division were almost completely not engaged in combat use and are currently incapacitated ...

During the winter period, not a single exercise on interaction with air defense systems was conducted in units of the 24th Air Division. Not a single alarm with a fighter sortie was carried out. The control of fighters in the air from the air defense command post has not been worked out at all, radio communication is not used, and pilots in radio control do not train ...

Comrade Pumpur dealt with issues of combat readiness of units poorly, as a result of which, in March 1941, an NPO inspection found that almost all units of the MVO Air Force were not combat-ready: machine guns were not adjusted, bomb racks were not adjusted, units were not engaged in combat use; combat readiness on alert has not been worked out ... "

Summing up the results of the winter period of training, the People's Commissar of Defense stated that the combat training of the Red Army Air Force was unsatisfactory, and none of the tasks of "unburdened families" by aviators was completed. Pe-

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retraining for new types of aircraft was carried out at a slow pace. The operation of the new materiel by the flight crew is poorly mastered. Low levels of combat training were accompanied by a large number of disasters and accidents.

On April 9, 1941, by a decree of the Central Committee of the All-Union Communist Party of Bolsheviks and the Council of People's Commissars of the USSR, Lieutenant General P.V. Rychagov was removed from his post as "undisciplined and failed to cope with the duties of the head of the Air Force" and sent to study at the Military Academy of the General Staff: "The facts say that due to laxity, on average, we die every day in accidents and catastrophes 2 -3 aircraft, which is 600-900 aircraft per year. The current leadership of the Air Force has proved incapable of leading a serious struggle to strengthen discipline in aviation and to reduce accidents and catastrophes. The leadership of the Air Force, as the facts show, not only does not fight for compliance with the rules of the flight service, but sometimes itself pushes the flight crew to violate these rules.

Interestingly, the rapidly growing Luftwaffe also suffered considerable losses as a result of accidents and disasters. For eight months, with | August 1940 to March 31, 1941 for these reasons, the Germans lost 575 aircraft. At the same time, 1368 people were killed, 50 were missing and 804 were injured. But the German command could not even think of limiting the training of its pilots to fly in circles and turns with a pancake, because the main thing in aviation is the level of crew training, otherwise there is no need to burn gasoline.

In the Soviet country, all kinds of "indicators" were put at the forefront, which had to be constantly improved. General Rychagov spoke about this, General Proskurov wrote to the Leader about this:

"Specialists believe that under the existing rules of flight service in the Air Force, they will not be able to fulfill the tasks assigned to them - the restrictions are too great. They visited several parts of the Air Force and made sure that the fear of the commanders was too great.

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for flights in adverse weather conditions and at night. Accidents are serious and there are many of them, it is true, but the interests of the cause require an even greater increase in the intensity of flight work, tirelessly improving the organization and order in the Air Force ... Dear Comrade. Stalin, we have never had a case in the history of aviation when a commander was judged for poor preparation of a unit subordinate to him. Therefore, people involuntarily choose the lesser of two evils for themselves and reason like this: "I will be scolded for shortcomings in combat training, well, in the worst case, they will be demoted by a step in my position, and I will go to court for accidents and disasters." Unfortunately, commanders who think like this are not isolated. Such sentiments exist and will continue to exist until the same demands and responsibility are made for the combat readiness of the subordinate unit as for the accident rate.

On February 25, 1941, the resolution of the Central Committee of the All-Union Communist Party of Bolsheviks and the Council of People's Commissars of the USSR "On the reorganization of the aviation forces of the Red Army" was approved, according to which a new personnel training system was established. In pursuance of the decision of the People's Commissar of Defense, on March 3, he issued Order No. 080 "On the establishment of a training system and the procedure for recruiting Air Force universities and improving the quality of training for flight and technical personnel."

The new personnel training system provided for the establishment of schools for initial training with a course of 4 months in peacetime and 3 months in wartime with a total flying time per cadet of 30 hours, as well as schools for military pilots with a course of 9 months in peacetime and 6 months - in wartime with a total flight time of 20 hours for bombers and 24 hours for fighters.

The task of the former was to teach piloting on a training aircraft and give general knowledge of aviation technology, aviation theory and military training; secondly, to teach piloting and use of a combat aircraft in simple weather conditions, group flights as part of a link and give practice in cross-country flights as part of a star

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on landing at unfamiliar airfields. Fighters, moreover, had to be taught initial aerial gunnery and the basics of aerial combat, while bombers needed to be taught 40-degree dives.

During the year, on the basis of flying clubs, 30 schools of primary education were to be formed with a total annual output of 45 thousand people, and to | June to create 5 military aviation schools for the training of Air Force commanders. In aviation schools, a two-year training period was established instead of three years in peacetime and one year in wartime, with a flight time of 75 hours per year. The first set was to be trained in a one-year course. Schools were to be completed by pilots who had served in the ranks for at least two years.

In combat units, a total flight time of 160 hours was established for each pilot.

By June 1941, the USSR had 3 academies, 4 military aviation schools, 2 advanced training courses for Air Force commanders, 2 higher schools for navigators, 29 primary schools, schools for bomber shooters, 16 schools for aircraft mechanics. In addition to this, there were naval aviation schools, training squadrons of the Civil Air Fleet, and schools for the training of junior aviation specialists—mechanics, gunsmiths, and air gunners.

In principle, the terms of training established by Timoshenko's order differed little from Voroshilov's "accelerated training" and noticeably from the system that existed in the first half of the 1930s, when a pilot was trained for 3-4 years, although the technique was much simpler. Independent flight time in combat vehicles at military pilot schools was reduced to 15 hours for fighters and 12 hours for bombers. Even before the deployment of new schools and colleges, the existing ones were staffed by 44.1% with teaching staff, and only 41.4% of their needs were allocated fuel.

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The "chief pilot" in the war was considered the conqueror of air supremacy, the "proud falcon of our Motherland" — a fighter pilot, masterful in technique, eager to fight, a brave and cold-blooded air fighter. Lapchinsky pointed out: "PILOTAGE FOR AIR FIGHTERS IN ITS MOST COMPLEX FORMS SHOULD BE A COMPLETELY HABITATIVE, AUTOMATIC MATTER, WHICH IS NO TIME TO THINK IN COMBAT, a matter as familiar as the process of walking for a pedestrian or riding for a cyclist.

From this it is clear that the fighter pilot requires the highest training and is always the best pilot. He is most concerned with maneuvering in the air in three dimensions.

Meanwhile, Soviet aviation schools released herds of young pilots without the necessary flight experience and experience in the hope that they would gain it in combat units, and there, as we remember, they were trained "for simple types of combat." In flight, all the attention of such a pilot was occupied by the control of the aircraft and keeping his place in the ranks, like a person sitting on a bicycle for the first time in his life. They did not conduct surveillance, did not know how to distinguish "their" planes from "strangers", did not orient themselves in space, and were easily "shot down by the enemy."

"Some Russian pilots did not even look around and rarely looked back. I shot down a lot of those who were not even aware of my presence," recalls G. Barkhorn.

The huge losses of the Red Army and the territorial successes of the Wehrmacht led to the fact that fighters were sent to the front, which had 5-8, and sometimes 2-3 hours of flight time. They were not trained in tactics, or aerobatics, or even aerial shooting.

"As the regimental commanders said," recalls M.M. Gromov, - such fighters "except for the engine hood in front of them, did not see anything." Because of this, our losses, both human and aircraft, were very painful

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and, most importantly, unjustified. That's what the concept led to: quantity, not quality. Industry in difficult conditions produced a huge amount of equipment, which was wasted due to the unpreparedness of young pilots.

The low level of professional training was exacerbated by the use of outdated tactics. The main combat unit was a flight of three aircraft with minimal intervals and distances between vehicles, incapable of maneuvering at high speeds. "Hawks" flew in tight formations, rushing into battle "in a crowd, an excessively large number of aircraft, often interfering with each other, regardless of the number, battle formation of the enemy, his intentions and capabilities." The order of battle of pairs was legalized only in November 1942. One of the reasons why Soviet fighters for so long remained committed to close combat formations, where the pilot had to watch not so much the air situation as to avoid crashing into a neighboring car, was the lack of radio communications.

The pilots, in the old fashioned way, strove to fight on turns - to go into the tail of the enemy, while losing speed and altitude. The Germans did not get involved in the "dog dump", they swiftly fell from above, hit point-blank and at great speed went "to the vertical", giving rise to "seditious thoughts" in the Soviet pilots about the superiority of German technology. Almost always, such an attack was successful. The compilers of Fighter Aviation Tactics EXPLAINED:

"If the fighter is at the top, then after a dive attack it can give a huge rate of climb for a short period and go up in an extremely steep "slide". This, by the way, creates a misconception among some pilots about the actual data of the German Me-109 fighter. The pilot, seeing the Me-109 passing by him at high speed and leaving with a "candle" upwards, does not take into account that all this

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It is achieved not so much due to the qualities of the aircraft, but due to tactics, due to the advantage in altitude, which gives a sharp increase in speed and rate of climb for a short period. Influenced by personal experience. Such a pilot ascribes non-existent, imaginary advantages to the Me-109 - fabulous speed and rate of climb.

Gold words. Only now, they were written in 1943. In the meantime, under the influence of the "personal impression" of the visible advantage of the enemy, the "Stalin's falcons" tried to avoid the battle as much as possible, let the "tambourines" fly for themselves, so long as they do not touch.

In early September, I.V. Stalin received a memorandum from the Stalingrad Front, which was signed by the Deputy Supreme Commander General of the Army G.K. Zhukov, Secretary of the Central Committee of the All-Union Communist Party of Bolsheviks Malenkov and Commander of the Red Army Air Force Lieutenant General A.A. Novikov: "Our fighters, even in those cases when there are several times more of them than enemy fighters, do not engage in combat with the latter. In those cases when our fighters carry out the task of covering attack aircraft, they also do not engage in combat with enemy fighters, and the latter attack attack aircraft with impunity, shoot them down, and our fighters fly to the side, and often simply go to their airfields. ... Our troops observe such shameful behavior of fighters every day."

Even the German bombers were not afraid of the Soviet fighters: "All the reports of the commanders of the German bomber units testify that in 1941 the Soviet fighters did not pose a threat to the formations of the German bombers and often avoided combat with the latter." If they nevertheless attacked, then very often they acted tactically

illiterate: not knowing the vulnerabilities and the location of the firing points of the bomber, from unfavorable angles, they opened fire from excessively long distances, and instead of cockpits and engines they fired at crosses on the fuselages.

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"Air superiority is not about flying a lot, but about flying smartly."

It seems that one does not need to be a genius to understand the "depth" of this thought. German fighters were always aimed at destroying the enemy, whether they solved the problem of seizing air supremacy, engaged in "free hunting" or provided the work of their bombers. The bulk of the Soviet fighters were used to solve defensive tasks, the main of which was to cover their ground troops, even if no enemy was observed in the air: "Do not allow enemy air strikes on Soviet troops." From morning to evening, Soviet air patrols loitered over the battlefield, raising the morale of the infantry with their presence. In order to continuously keep the planes in the air, they were sent on missions in small groups, that is, they turned into a fiction their multiple numerical superiority over the Luftwaffe. The initiative was completely voluntarily ceded to the enemy, who imposed the battle in the most favorable conditions for himself. Moreover, proudly "ironing the air" in close formations, at low altitude and low speeds, Soviet aircraft were an ideal target.

Rall recalls: "The actions of the Russians in the air turned into endless and useless sorties with a very large numerical superiority, which continued from early dawn until late twilight. There were no signs of any system or concentration of effort. In short, there was a desire to keep aircraft in the air at all times, on constant patrol missions over the battlefield.

Therefore, on the Eastern Front, there were always 6-10 times fewer German fighters than

Soviet - they were enough.

Experience was again accumulated at the cost of blood, and very slowly. Since aviation regiments were brought to the rear for reorganization only after they were completely knocked out, it was practically impossible to transfer this experience.

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honestly no one. Untrained youngsters went into battle again. As a result, back in the summer of autumn 1942, a significant part of Soviet fighters still did not know how to conduct a group air battle, and the wingmen could not keep their place in a flight of two or three aircraft.

Soviet bomber aviation was engaged exclusively in support of ground operations and did not solve any strategic tasks. According to enemy observations: "The targets of attacks were positions of infantry and artillery or concentrations of troops and reserves at a distance, usually from 10 to 15 km from the front line. Such combat missions were carried out, first of all, against objects beyond the reach of artillery; on other occasions they supported the artillery bombardment."

This fully applies to the Aviation of the High Command.

On the second day of the war, long-range bombers, together with naval aviation, bombed Danzig Koenigsberg, Warsaw, Krakow, Bucharest, however, without visible effect. On the night of August 10-11, 1941, bombers of the naval aviation of the Red Banner Baltic Fleet and the 81st heavy bomber air division made a symbolic raid on Berlin. On the whole, the Soviet bomber aviation in 1941 acted with little success and was subjected to a merciless beating.

The main reason for the low efficiency is the insufficient qualification of the pilots and navigators, which led to the low accuracy of bombing. The leader, often he alone had a card with

route of flight, led the group lined up in a "wedge" to the target, his navigator carried out aiming and dropped bombs, the rest bombed from level flight "along the leader", without aiming.

The main reason for the high losses is the illiterate fathers-commanders of all ranks, "volitional" and

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"Bolsheviks", who easily ignored instructions on the combat use of aviation, did not know how to plan a battle, did not make informed decisions, but, like single-celled ones, spontaneously reacted to external stimuli. General Ya.V. Smushkevich: "The whole trouble lies in the fact that we are happy to read an article by some correspondent, especially a translated one, but we don't read our charters and don't know them. The whole trouble is that we do not put into practice what we know, the trouble is that we do not train our Air Force how to carry out the forms of combat use of the Air Force known to us. By the way, on the eve of the war, 46.2% of Soviet aviation commanders, starting from the regiment commander and above, had only a primary general education.

Trying to correct the catastrophic situation on the fronts, the Soviet command directed all bomber, including long-range, aviation to strike at the rapidly advancing tank and mechanized columns of the enemy. The bombers were actually used as attack aircraft, operating from a height of 100-400 meters, without fighter escort, and died en masse from attacks by German fighters and anti-aircraft fire. For a long time already not high-speed, with weak defensive weapons, the SB disappeared in whole groups.

So, the commander of the 3rd long-range bomber air corps, Colonel N.S. On June 22, Skripko received from the front headquarters the task of "destroying the enemy's motorized and mechanized troops in two areas - Suwalki, Sejny, Avgustov, Kvitmotis and Sedlec, Yanov, Lukov" and involuntarily thought:

"Where are our troops, what information is there about the enemy in the area of our targets? No one could give an exact answer to this question. It was necessary to clarify the air and ground situation in the area of our combat operations ourselves, to detect the largest and most dangerous concentrations of Nazis who had broken through into the operational depth and to bombard the enemy.

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Long-range bombers are designed, of course, to perform other tasks. But if the air corps is ordered to destroy enemy mobile troops that have broken through on our territory, then this, of course, is a forced measure and is caused by an alarming situation, I decided. The Headquarters of the Air Force of the Front accepted our applications for overflight of long-range bomber aviation regiments and soon confirmed that the route would be communicated to fighter aircraft and ground troops. When I requested cover, General I.I. Kopets categorically stated:

- We can't cover with fighters! ..

The crews got up to the task after a short meeting, at which the pilots, navigators, air gunners-radio operators swore to give all their strength, and if necessary, their lives, to defend the Soviet Motherland."

On the first day, the corps lost 26 DB-Zf vehicles, up to 25% of the materiel needed to be repaired. Soviet fighters, piloted by "young pilots", not only did not cover their bombers, but, on the contrary, not orienting themselves in the situation, "did not pay attention to the signals of the missiles: "I am my own plane" and went to intercept".

On June 24, over Bereza-Kartuzskaya, Messers shot down 8 out of 9 Ilyushins of the 212th long-range bomber regiment, and the 207th regiment out of 18 aircraft that flew to the Pruzhany area,

returned eight. As Skripko writes: "The tactics used by the air regiment to strike with flights, bombing at intervals of 15 minutes from a height of 800-600 meters without fighter cover, did not justify itself." Actually, THIS is a crime, ataktika, by definition, is the ART of building troops and fighting.

The apotheosis of hysterical stupidity was the operation to destroy the crossings across the Western Dvina near Dvinsk and across the Berezina near Bobruisk on June 27-30.

At the beginning, DB-3 from the 1st long-range bomber air corps of Major General V.I. worked on the bridges in Dvinsk, captured by the corps of General Manstein. Izotov. On June 30, they were bombed by 93 SBs, DB-3s and Ar-2s of the Baltic Fleet Air Force. "In these days, Soviet aviation made every effort

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liya to destroy bridges that fell into our hands with air raids, Manstein recalls. — With amazing tenacity, at low altitude, one squadron flew after another with the only result — they were shot down. In just one day, our fighters and anti-aircraft artillery shot down 64 Soviet aircraft. The crossings remained unscathed, which allowed the Germans, having waited for reinforcements, to continue their offensive in the Baltic.

The crossing of the 24th motorized corps near Bobruisk was also not successful. On June 30, the pontoon crossing and the equipment accumulated near it were attacked by aircraft of five aviation divisions. Despite the fact that the crossing and the approaches to it were covered by a large number of anti-aircraft machine guns and small-caliber artillery, and German fighters continuously loitered in this area, the Soviet command did not provide any escort or special forces to suppress air defense. Moreover, in order to achieve "continuous impact on the enemy", bombers, including TB-3 bombers, were sent to the target at short intervals by separate squadrons and units.

The German fighter squadron 51 on that day reported the destruction of 113 Soviet bombers.

According to Soviet data, on June 30, Soviet bombers in the areas of Dvinsk and Berezina lost 110 vehicles, not for a minute slowing down the advance of the enemy.

On July 4, in order to "preserve and most expediently use" long-range aviation, the Stavka subordinated it personally to G.K. Zhukov, who on the same day signed another "deadly" directive:

"The use of aviation for actions against facilities and troops has shown that part of the aviation is spent inappropriately. An object that can be hit by 3-5 aircraft is attacked by large groups of aircraft. The headquarters ordered:

1. Flights to bomb objects and troops in large groups are strictly prohibited.

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2. Henceforth, sorties for bombing one target at the same time produce no more than one link, in extreme cases, a squadron.

That is, the great strategist reduced the strike capabilities of the DBA to zero and at the same time deprived the crews of any hope of survival.

German bombers flew throughout the war in close, compact formation - still the Spanish experience. This limited the number of directions from which each aircraft could be attacked by fighters, and also made it possible to concentrate several bombers on the attacker at once.

Soviet bombers mastered this tactic only in [1944, probably Zhukov had already allowed it.

In mid-September, 25 mighty TB-3 machines accounted for 40% of the Air Force of the Western Front.

Such criminal use of bomber aviation led to the fact that out of 8400 combat vehicles by the end of the year 7200 were lost.

Long-range aviation practically ceased to exist - separate regiments carried out combat operations, most often playing the role of front-line aviation. On December 22, 1941, only 266 serviceable aircraft remained in the DBA (182 Il-4 and 84 TB-3), as well as a dozen Pe-8s and Yer-2s.

The revival of the DBA occurred only in 1942, but until the end of the war, long-range aviation continued to play the role of long-range artillery, acting in the interests of the ground forces and practically not conducting independent operations.

All of the above fully applies to the training and combat use of attack aircraft, with the only difference that they died more often, since they did not have a rear gunner.

Pilots for reconnaissance aviation were not trained anywhere at all. Brigade commander Lapchinsky, thinking about the specific realities of the war, wrote:

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"Reconnaissance is the most dangerous and most exciting job in aviation. At the same time, it provides for the peace and security of thousands of earthly fighters, making them aware of the situation. The responsibility of a scout is great, and the importance of his work can hardly be overestimated.

A scout must think in terms of the scope of the operations he serves. Intelligence is the most "mental" work of aviation.

Danger, consciousness, significance and responsibility place exceptional demands on a scout. He must be clear about his work. For his mistakes, negligence or dishonesty, the masses for whom he works are paying. The accuracy, timeliness and completeness of his data gives these masses peace and self-confidence. Let us add that an aerial reconnaissance aircraft must be able to fly in the most difficult meteorological conditions, orientate itself perfectly in a ground situation, be able to use various types of equipment, and rely only on oneself in flight. All this presupposes a set of

qualities.

However, priorities have changed. Intelligence in the Red Army was replaced by the expectation of directives, the analysis of information by the thoughtless execution of orders. Therefore, the incapable, poorly versed in the technique of piloting and combat use of bomber and fighter pilots were written off to reconnaissance aviation. In the certification they wrote: "Due to poor piloting technique and poor general educational training, it is not possible to use in bomber or fighter aviation. To be transferred to reconnaissance aircraft. Moreover, in 1940-1941] in connection with the deployment of new aviation schools, the most experienced reconnaissance pilots were sent to teaching. Their place was taken by youths who actually did not know how to fly, who had no idea about the specifics of reconnaissance, who did not know the devices of the camera, who did not have "skills for transmitting data from an aircraft".

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"One of the biggest shortcomings," writes M.M. Gromov, - there was a lack of a "school" for teaching the ability to fly in the clouds ... it turned out that intelligence - the eyes of the army - could not fly in bad weather. Moreover, in some headquarters of the Air Force of the districts, reconnaissance departments.

The Germans were amazed by this attitude to reconnaissance. "The training of reconnaissance pilots was completely neglected. There were no special schools. This fact cannot be explained, especially considering that the Air Force had to support the army and navy.

In the context of the outbreak of hostilities, the red commanders needed not the materials of the last plenum of the Central Committee of the All-Union Communist Party of Bolsheviks, but reliable and operational data on the enemy. As a result, in just a month and a half of the war, all reconnaissance aviation regiments of the air forces of the fronts suffered heavy losses and lost their combat effectiveness, and in October-November almost all of them were disbanded. On 1 January in the ranks there were 94 reconnaissance aircraft, working on instructions from the General Staff and the commander of the Air Force. The revival of reconnaissance aviation began only in May 1942, but the Red Army did not receive a specialized reconnaissance aircraft until the end of the war.

The commander of the bomber group, Colonel Freiherr von Beust, writes: "At the beginning of the campaign, the Soviet Air Force had a six- or eight-fold superiority in numbers. However, they failed to keep up with the times in the organization of combat work, training of flight personnel and the technical level of their aircraft fleet. Therefore, the Soviet Air Force as a whole was a large and bulky instrument with little combat value, any element of which could be destroyed by the Luftwaffe within a few weeks after it was in the range of Soviet aircraft. If the Soviet Union did not have such a large territory that would allow for the reorganization, training and replenishment of units in safe areas beyond the reach of the Luftwaffe, and not

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If there were such large human and material reserves, Soviet aviation would never have recovered from the blow inflicted on it at the beginning of the war.

The pre-war strength of the Soviet air force will be restored by 1943.

Qualitatively, the RKKF will never reach the level of the Luftwaffe.

If you use Voroshilov associations:

An airplane is more complicated than a steam locomotive.

An aircraft designer, an engineer, a pilot are "more difficult" than a plumber or a commissar.

Science is more complex than Marxism.

The Air Force is much more "complicated" than the Regional Committee of the Party.

The "system", which absorbed Lenin's contempt for mental work, cultivated violence as a universal key to solving any problems, operated on "masses" and ignored "units", convinced that fear is the best motivation, prison and barracks are the best forms organization of any activity, the system, which believed that there was not much difference between the collective farm and the Air Force, and the cook could run the state, had a chance to win the war

only quantity.

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Published in the author's edition Managing editor I. Petrovsky Art editor G]. Volkov Technical editor V. Kulagina Computer proofing A. Dubok Proofreader L. Nikiforova

LLC "Yauza-press" 109439, Moscow, Volgogradsky pr-t, 120, bldg. 2. Tel.: (495) 411-68-86, 956-39-21, fax 411-68-86

Signed for publication on 10.10.2011. Format 84x108 1/52. Headset "Newton". Offset printing. Conv. oven l. 18.48. Circulation 4,000 copies. Order 7962.

Printed from electronic media of the publisher. OAO "Tver Polygraphic Plant". 170024, Tver, Lenin Ave., 5 mail (E-thai) - check-in@megrk.gi

15VM 978-5-9955-0344-6

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lab ai A NEW book by a leading anti-Stalinist historian. Sequel to the bestseller "FIGHT ON

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"The Flying Guaranteed Coffin" - this is how the Stalinist falcons called the LAGG-3, which at the beginning of the war was considered the main "new type fighter", but inferior to the "Messers" in all respects. The MiG-3, and even the Yak-1, were obviously losing to the enemy, not to mention the outdated donkeys and seagulls. (How can one not recall the words of the commander of the Red Army Air Force Pavel Rychagov addressed to Stalin, which cost him his life: "You forget us to fly on" coffins "!"). Contrary to the pre-war "dizziness from success" and propaganda hype, the "Stalin's falcons" could not fight on an equal footing with the Luftwaffe - from the first days of the war, the Fuhrer's "experts" seized undivided air supremacy, and our combat aircraft, outnumbering the enemy three times, demonstrated complete the combat capability and by the end of 1941 was knocked out by 90%, which cannot be justified either by the "suddenly STYU" enemy strike, or by the airfields that "slept through" the war. The backlog of the Soviet Air Force could not be eliminated until the Victory itself - no matter how good the La-7 and Yak-3 were, at the end of the war the Germans had already launched jet fighters into mass production!

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